

YmMarker 2.0

User's Manual

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Chapter1 Introduction

1.1 YmMarker 2.0 Brief Introduction

1.1.1 Software Installation

The YmMarker2.0 software run on an PC with 500 MHz CPU and 128 MB RAM at least. In general, we recommend the fastest PC available. YmMarker2.0 was developed in Microsoft Windows 2000 and will run in Windows 98SE/2000/XP.

The installation of YmMarker2.0 is very easy. Users simply need to copy YmMarker2.0 folder which is in the Install CD to hard disk, and then double click the YmMarker2.0.exe under the YmMarker2.0's directory to run the software.

YmMarker2.0 requires a software security device sometimes known as a 'dongle'. This device plugs into the USB port on the PC. If there is no dongle or the dongle do not installed correctly, a caution will appears and the software will work at demo state. In demo state, we can evaluate the software but we can not save files and can not control laser device.

1.1.2 Software Function

Main functions of the software:

- Users can design their graphics freely.
- Various types of fonts are supported. Such as TrueType, JSF(Single line font defined by YmMarker2.0), DMF(Dot Matrix Font), One-Dimensional bar code, Two-Dimensional bar code , and so on)
- Flexible variable text : changes the text real time while in laser processing. Excel datasheet is supported.
- Strong node editing function make the curve modification more easier
- The software can support 265 "pencils", which used to draw graphic and can be set different processing parameters.
- Common types of images are supported. (bmp, jpg, gif, tga, png, tif..)
- Common vector images are supported. (ai, dxf, dst, plt..)
- Image processing (Grayscale, White / Black Transformations)
- Powerful hatching functions, such as support round hatch.
- More convenient IO operations and more easier to harmonize the auxiliary equipments.
- An opening language supporting system makes it easy to run the software in various languages platform.

1.1.3 Interface Introduction

- **Software starting interface**

The picture (Figure 1-1) appears while running the program, and meanwhile the initial operations takes place in the background.



Figure 1-1 Program starting interface

- **Main Interface (Figure 1-2)**

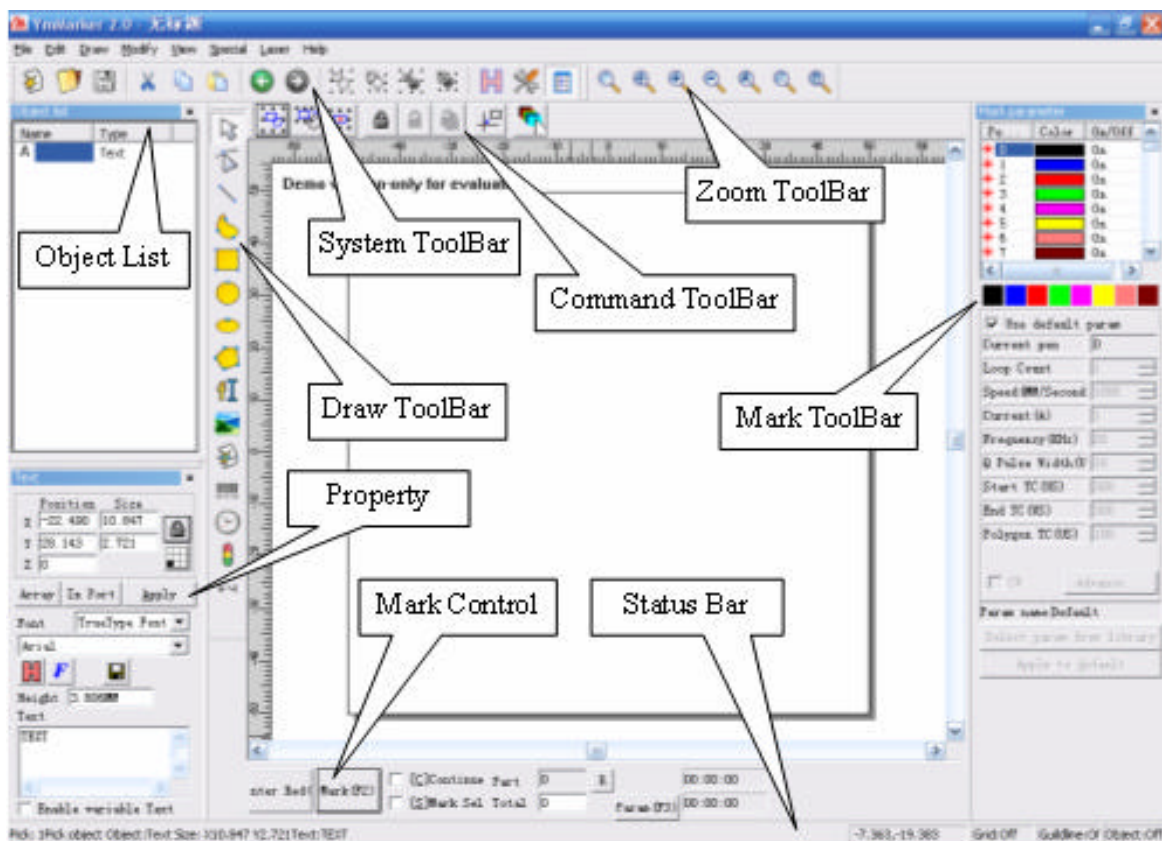


Figure 1-2 YmMarker2.0 Main Window

1.2 About YmMarker2.0 User's Manual

1.2.1 Contents Arrangement

The User's Manual will introduce each menu (File, Edit, Draw, Modify, View, Help) in turn.

1.2.2 Announcement

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Chapter 2 File Menu

The File Menu is used for common file functions such as opening, saving, importing images from Twain equipment, etc. (Figure 2-1)

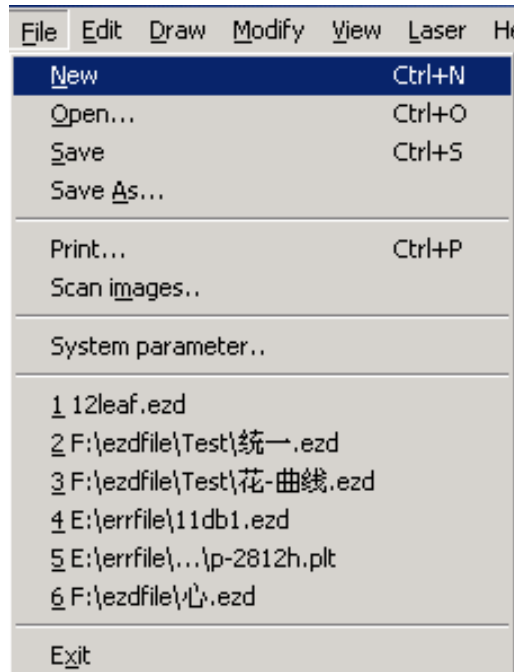



Figure 2-1 File Menu

2.1 New (N)¹

"New" is used to create a blank work space to construct objects, and its shortcut key is "Ctrl + N"². When "New" is clicked, the software will close the documents which you are editing and meanwhile create a new file. If the documents you are working on have not been saved yet, the software will prompt if you would like to save it.

The icon of "New" in toolbar is . Click on this icon will achieve the same operation.

If you move the mouse cursor onto the icon mentioned above and keep it for a while, a piece of prompt information (Tooltip) will appear, which briefly explains the function of this icon, and also there will be some detailed explanations appearing in the status bar in the bottom of the main window. And if you move the mouse cursor onto "New" in File Menu will only show detailed explanations in the status bar.

¹ The letter N underlined indicates that the key 'N' in keyboard will also do the same achievement. The following contents do the same.

² "Ctrl + N" refers to press the key 'N' while press the key 'Ctrl'. The following contents do the same.

Reminder: In YmMarker2.0 software, each icon in the Toolbar contains a function of showing brief prompt information and displaying detailed explanation. Also, each icon has a corresponding menuitem, and both the two ways carry out the same function. The User's Manual will not mention it again in the following chapters.

2.2 Open (O)

“Open” is used to load a saved “.ezd” file, and its shortcut key is “Ctrl + O”. (Figure 2-2) When click “Open”, the software will pop a open-file dialog to ask you select the file you want to open, See fig 2-2. When you select a valid “.ezd” file, the dialog would display the preview of the file(you must have saved the preview when you save the file).

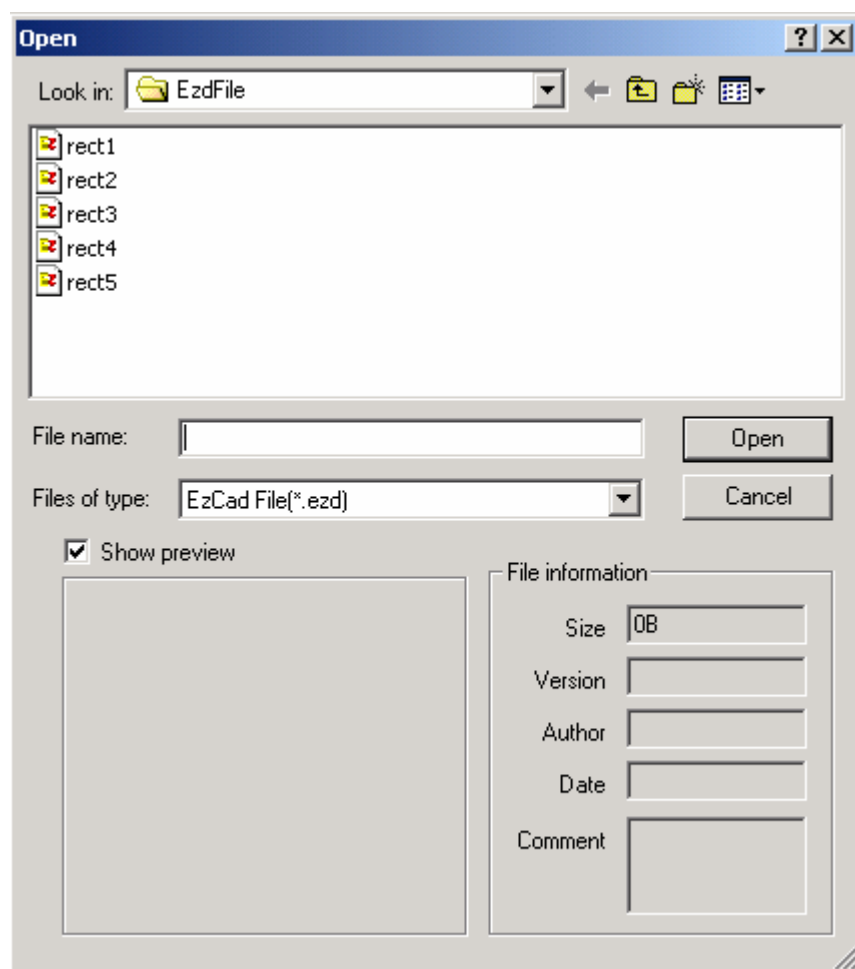


Figure 2-2 “Open” Dialog Box



The icon of “Open” in toolbar is .

The files saved with other file-format will not be opened by the “Open” command.

2.3 Save (S) / Save As (A)

“Save” file is used to save the current state of a mark Document to disk. “Save As” is used to write the current mark Document to disk by another name. Writing a file to its current name is the same as the Save function.

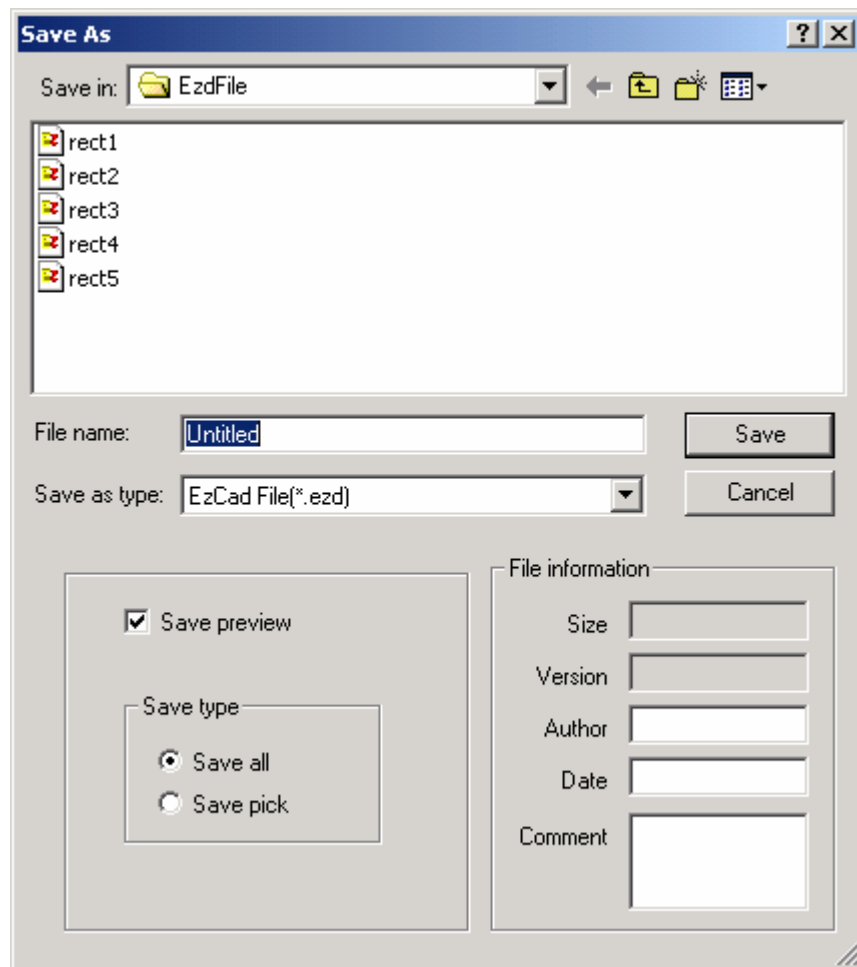



Figure 2-3 Save

If the current Document has already been named, “Save” is selected to save it under the name that was used to open the file, or the software will prompt to the user to choose a destination path and type a name. Whether the current file is named or not, “Save As” will appear to ask for a new name to save file, and the previous file will not be overwritten.

If you select “Save Preview Image”, you will see the preview when you open the file(refer to “Open” function).

The icon of “Save” in toolbar is .


2.4 Print

“Print” is used to print the images you are working with.

2.5 Obtain Scan Images (M)

“Scan Images” is used to get digital graphic object from Twain device. When selected the “Scan Images” function will prompt the user to choose a Twain device. (The Twain device listed in the column should be those which have been legally installed in the computer.) When the suitable device is selected, you can now insert a graphic object into the currently selected Document. (Different devices show different prompts. Please consult the devices operation reference.)

2.6 System Parameter (P)

“System Parameter” configures the software, and the icon of “System Parameter” in toolbar is .

Users can use this command to change the default setting of Display, Save and Language, etc.

When selected, a dialog box will appear, and you can set the unit the software uses, the color displayed, the work space's parameter, the interval of auto save, the locale language, etc.

2.6.1 General

In “General”, common parameters can be configured. (Figure 2-4)

“ **Unit Type** ” : millimeter and inch are two options can be selected.

“ **Paste X** ” and “ **Paste Y** ” : the relative offsets to the previously object when paste.

“ **Grid** ”: show or hide the grid

“ **Grid Distance** ”: adjust the distance in grid.

“ **Enable Mark Mutex (EZCAD2MUTEX_MARKING)** ” : This option is used to synchronize the YmMarker program with third-party programs. If checked, the YmMarker software create a mutex object named “YMMARKER2.0MUTEX_MARKING”. The mark command cannot be executed until the mutex is “signaled” by other programs. After marking, the mutex will be switched to “nonsignaled” state by YmMarker software

“ **Execute when ezcad starts** ” : The exe file appointed here will be executed when the YmMarker software starts.

“ **Execute when ezcad Finish** ” : The exe file appointed here will be executed when the YmMarker software ends

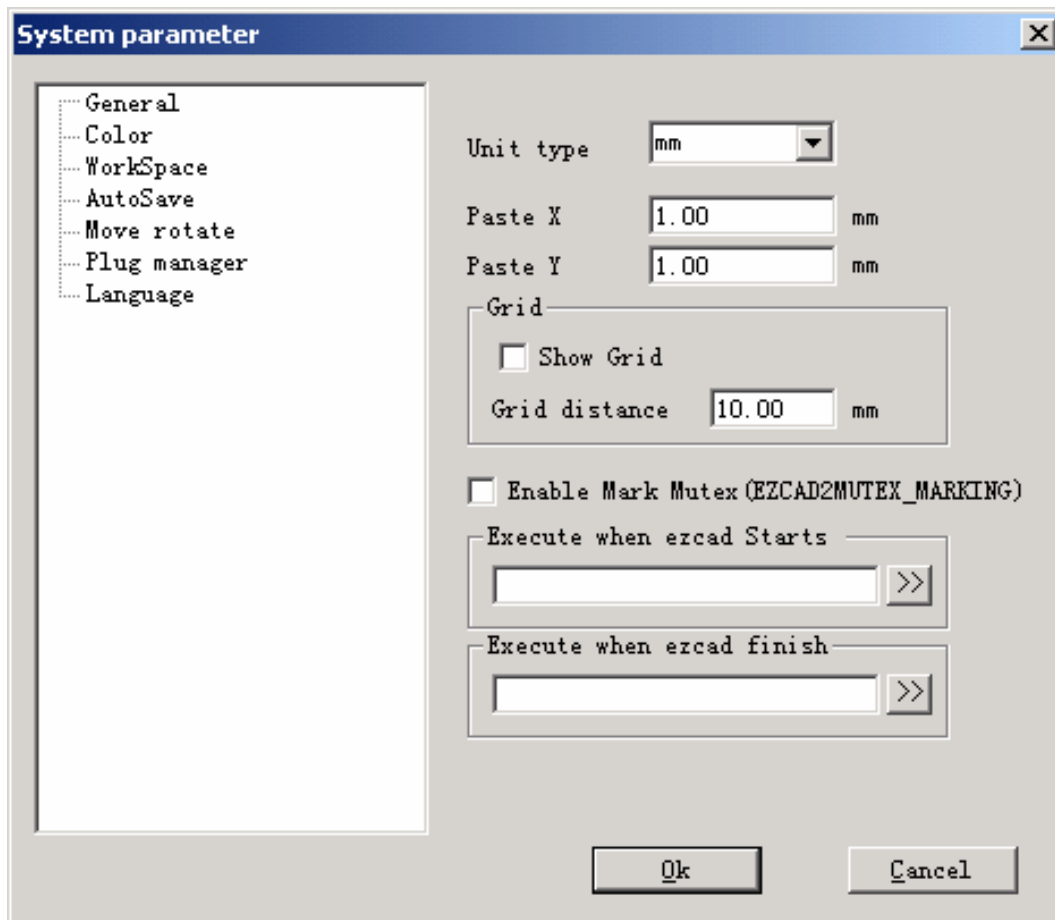


Figure 2-4 System Parameter

2.6.2 Color

“Color” is used to set the color of background, work space, guide line and grid, etc. Double click the color stripe could change the color wanted. (Figure 2-5)

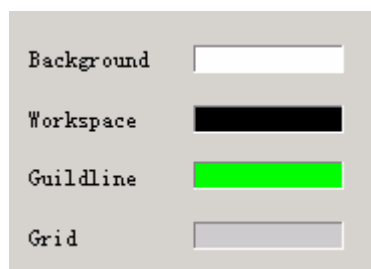


Figure 2-5 Color

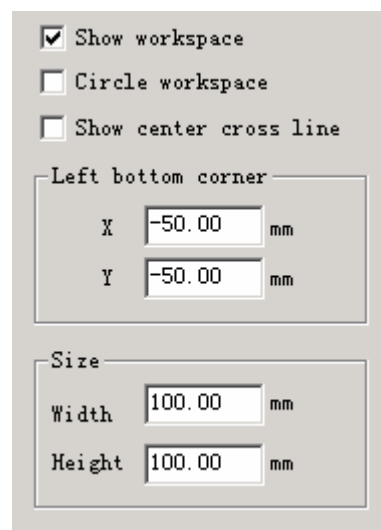


Figure 2-6 Set the Work Space

2.6.3 Work Space

The set of the work space's property contains setting the size, type and position of the work space. (Figure 2-6)

The Work Space is the rectangle or circle area in the main interface window. This space is corresponded with the available working field of the laser machine, and any object drawn in this area will be marked in operation. Due to the limit of the field, those objects drawn out of this space may not be marked.

2.6.4 Auto Save

"Auto Save" refers to the interval time between two automatic saves, and the initial value is 10 which means to save file per ten minutes. The file saved is named as 'AutoSave.ezd' in YmMarker2.0's directory. (Figure 2-7)

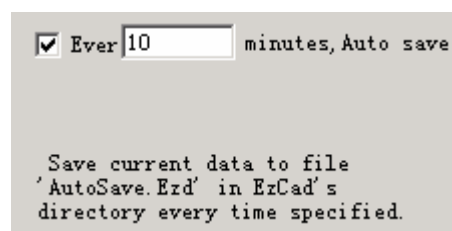


Figure 2-7 Auto Save

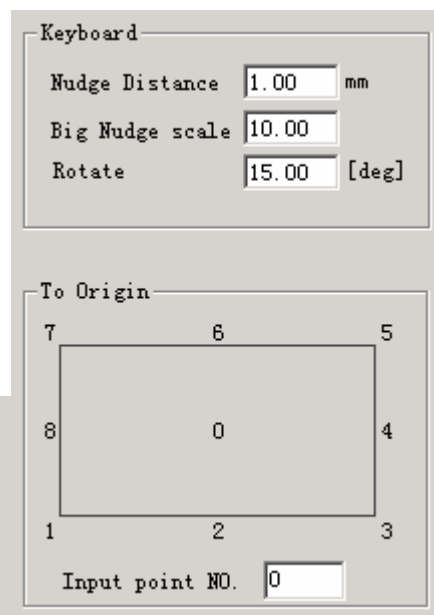


Figure 2-8 Move-Rotate

2.6.5 Move-Rotate (Figure 2-8)

Nudge Distance: the distance that the object moved when pressing direction keys each time.

Big Nudge Scale: indicates the number the user wants to time the **Nudge distance** so as to achieve further each time when synchronously press direction keys and "shift" key together

Rotate Angle: the angle the object rotates each time when press direction keys and "ctrl" key together

Object's Origin: when use "Put to origin" function, which point of the object should be put on the origin..

2.6.6 Plug Manager

The list displays the YmMarker software plug which has already been installed in the computer. The users can activate or inactivate each plug. Press “blank” key or double click the plug name will switch the active state. (Figure 2-9) Changes will take effect in YmMarker's next start.

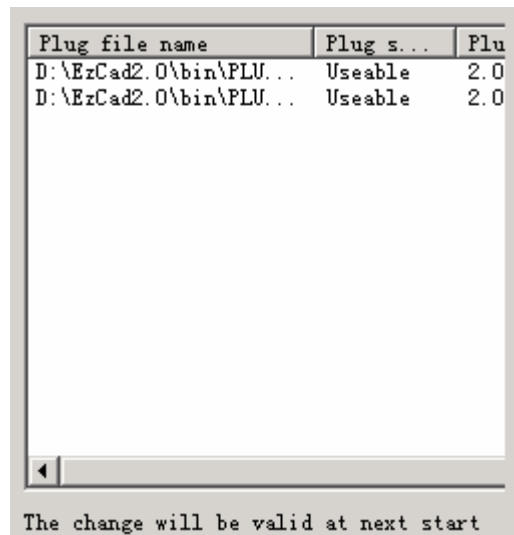


Figure 2-9 Plug List

2.6.7 Language

This item is used to change languages between Chinese and English. (Figure 2-10) Changes will take effect when restarting the marking software.

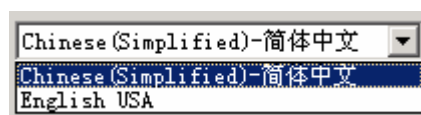


Figure 2-10 Language

2.7 Recent File List

Below the menuitem of **System Parameter**, a list is displayed to show the latest Document files opened, and the max. amount of the file items is ten. There is no file listed if users have never opened / saved any “.ezd” files, and “Recent File” is unavailable.

2.8 Exit (X)

Exit the YmMarker software. When selected the Exit function will prompt the user whether to save the files which have not been saved yet.

2.9 Object List

Object List is in the left side of the main interface window.

Marked objects are grouped into an object structure or ungrouped to many objects. (Figure 2-11)

When in marking process, system will follow the order to mark the objects listed.

Users can rearrange the list by directly dragging the object up/down to change the marking order..

Users can double click the object bar to name them.

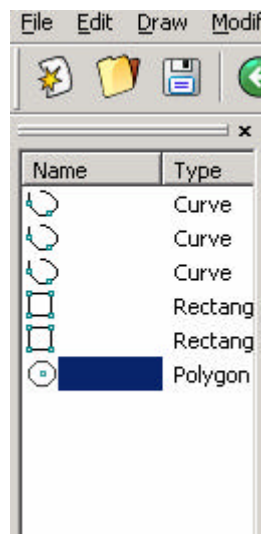



Figure 2-11 Object List

2.10 Object Properties

Object Properties are displayed in the left side of the main interface window

- **X position:** the X coordinate of the point in the left bottom corner of the object selected.
- **Y position:** the Y coordinate of the point in the left bottom corner of the object selected
- **Z position:** the Z coordinate of selected object
- **X Size:** width of the object selected
- **Y Size:** height of the object selected
- : Lock the current width/height proportion of the object selected. If user change the object's size, system will keep the X/Y ratio. .Click

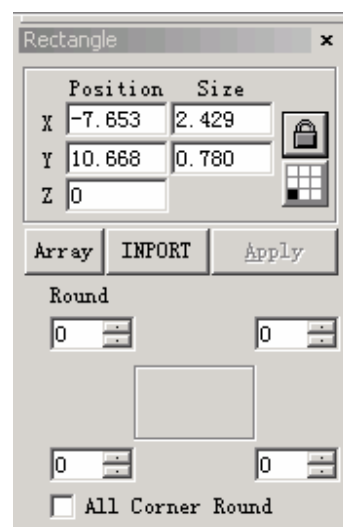



Figure 2-12 Object Property

the button will switch to unlock state

-  : The coordinate data (**X position** , **Y position**) is mapped to which point of the object.
- Array**: copy the current object and arrange them to the destination users want by setting the row|column number and space

Count X: the count of the row

Count Y: the count of the column

Inc(mm): the space between each row|column..

Figure 2-13 stands for the situation when "X=3, Y=2"

Figure 2-14 stands for the situation when "X=2, Y=3"

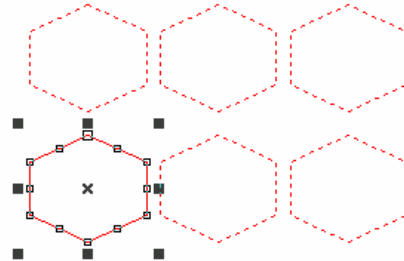




Figure 2-13 Array (X=3, Y=2)

 : set array's row as marking precedence

 : set array towards vertical direction as marking precedence

 : Unidirection marking.

 : bidirectional marking

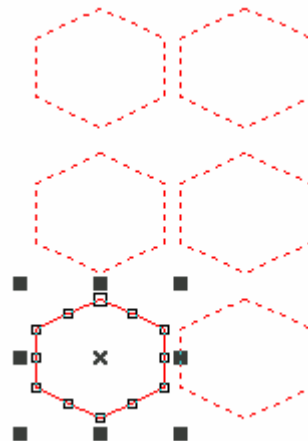


Figure 2-14 Array (X=2, Y=3)

I/O Control condition: The system reads the input port first, and then compare whether the current input signal is as the same as the object's "I/O Control condition", and if it does, the current object will be marked, or, the system will skip the current object and handle next object. Only four bits(0,1,2,3) are available now. Each bit have three states. The grayed state means skip this signal. The unchecked state means that if we want to mark this object then the signal of this bit must be low level voltage(TTL compatibel). The checked state stands for the high level voltage(TTL compatibel) needed.

☒ : expect the high level voltage

☐ : expect the low level voltage

☒ : skip the signal

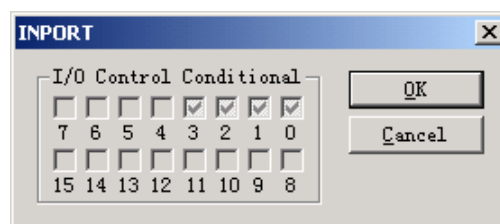


Figure 2-15 Input Port

Chapter 3 Edit Menu

“Edit Menu” carries out the editing operation of an object. (Figure 3-1)

<u>E</u> dit	<u>D</u> raw	<u>M</u> odify	<u>V</u> iew
Undo Polygon		Ctrl+Z	
Redo		Ctrl+Y	
Cut		Ctrl+X	
<u>C</u> opy		Ctrl+C	
Paste		Ctrl+V	
Combine		Ctrl+L	
UnCombine		Ctrl+K	
Group		Ctrl+G	
UnGroup		Ctrl+U	
Hatch		Ctrl+H	
To Curve		Ctrl+Q	

Figure 3-1 Edit Menu

3.1 Undo (U) / Redo (R)

“Undo” will undo the last action that the user made in YmMarker2.0. For example, if the user deleted an object accidentally, clicking Undo will bring the program back one step to where that item still existed. And the user also can select “Redo” to redo the last action which has just been deleted.

3.2 Cut (T) / Copy (C) / Paste (P)

“Cut” will delete the object selected from YmMarker2.0 and copy it to the clipboard. It can be inserted back into the .ezd file later using “Paste” function. Note that it will be lost if other data is copied to the clipboard.

“Copy” will copy the selected object to the clipboard and reserve the current object..

“Paste” will paste the object from the clipboard to current document file.



The shortcut keys of “Cut”, “Copy” and “Paste” respectively are: Ctrl+X, Ctrl+C and Ctrl+V.

3.3 Combine / Uncombine

“Combine” will ignore all the selected objects’ curve properties and combine those objects into a new curve combination with new curve properties. Same as other objects, this new combination can be selected, copied, pasted and set properties.

“Uncombine” will get the combination back to the curve objects separately. The objects after “Uncombine” may be different from those before “Combine”. “Undo” should be used to

restore the original objects



The feature Combine's icon in Toolbar is , and the feature Uncombine's icon in Toolbar is .

The shortcut keys of "Combine" and "Uncombine" respectively are: Ctrl+L and Ctrl+K.

3.4 Group / UnGroup

When selected the "Group" function will keep the selected objects' original properties and make them into a new object, and this new group, as the same as other object, can be selected, copied, pasted and set object properties.

"Ungroup" will turn the object which has just been grouped into previous situation.

The icon of Group in Toolbar is , and UnGroup's is .

The shortcut keys of "Group" and "UnGroup" respectively are: Ctrl+G and Ctrl+U.

3.5 Hatch

"Hatch" is used to force YmMarker to calculate the hatch fills for the current objects. The object to be filled must be closed curve, and if you choose many objects to fill, these figures can be objects nested mutually. Any two objects may not have intersectant parts (Figure 5-11)

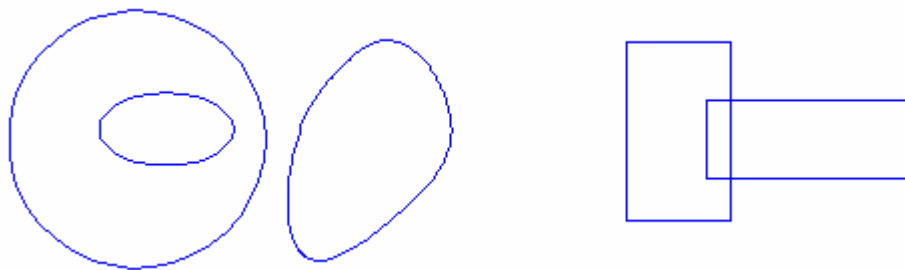



Figure 3-2 Hatch

(Objects on the left can be filled; The two rectangles on the right may get unexpected result for they intersect each other.)

The icon of Hatch in Toolbar is , and when selected a hatch dialog box will appear as Figure 3-3 shows.

Mark Contour: whether to show and mark the current object's contour or not

Hatch 1 / Hatch 2: Users may have two independent hatch parameters to hatch the same object at the same time. Each set of hatch parameters can be appointed a Pen No. which stand for a set of marking parameters.

Enable: whether to permit the validity of the current hatch parameter.

All Calc: Calculate all the selected objects as a whole. This is an optimizing option. In some cases the speed of marking may highly be raised. It will take long time to calculate large, complex objects. When not selected, the objects will be calculated separately.

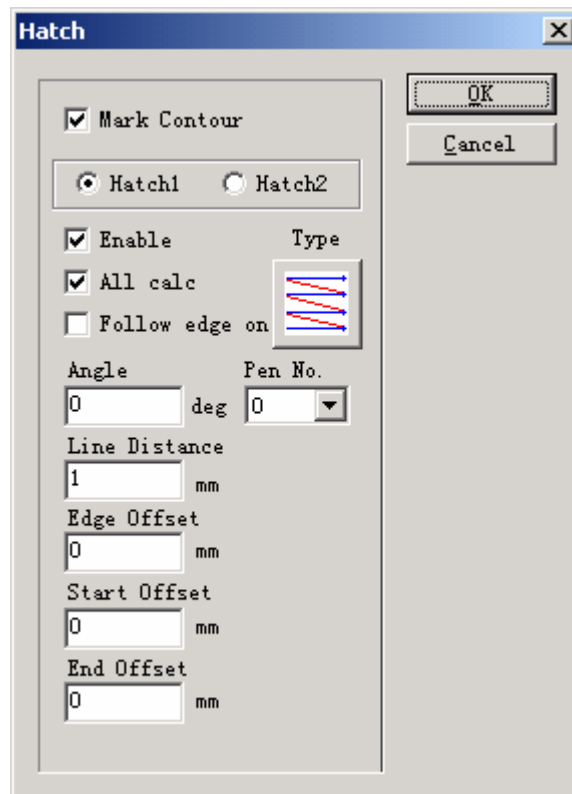


Figure 3-3 Hatch

Type of Hatch: (Figure 3-4)



Unidirectional hatch: The hatch lines will be marked from left to right.



Bidirectional hatch: The hatch lines will be marked from left to right first, and then from right to left,.



Ring-like hatch: fills objects from the outside to the inside like a ring

Click the button will switch between the unidirection, bidirection, and ring-like hatch.

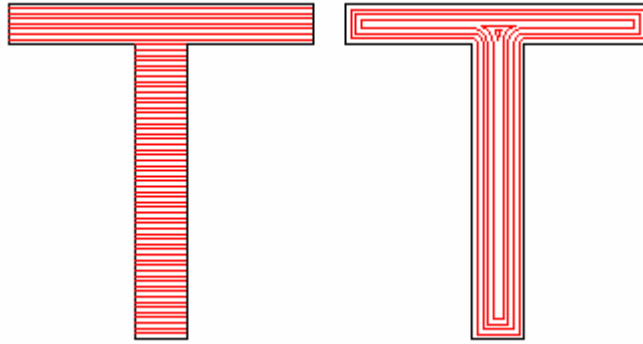


Figure 3-4 Types of hatch

(The left object is being filled by Unidirection Hatch or Bidirectional Hatch, and the right object by Ring-like hatch)

Angle: Hatch Angle stands for the angles between hatch lines and X axis, and Figure 3-5 is the feature when the angle is 45 degrees.

Line Distance: the distance between two hatch lines

Edge offset the distance between hatch lines and the object's outline (Figure 3-6)

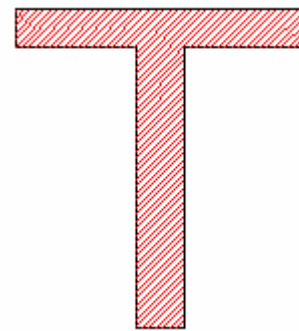


Figure 3-5 45 Degrees

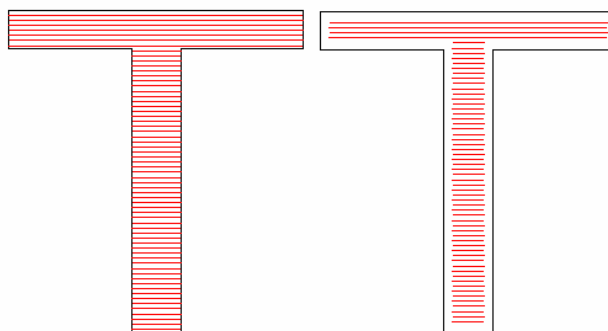


Figure 3-6 Border Distance

(The left object shows the figure when Edge offset is 0, and the right shows when it is 0.5.)

Follow edge one time: draws outline one time around the hatch lines after filling (Figure 3-7)

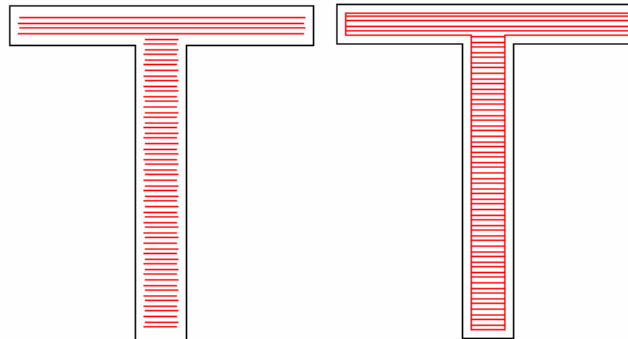


Figure 3-7 Follow edge one
(The left object do not enable this option, and the right one do.)

Start Offset: the distance between the first fill line and the border of the object

End Offset: the distance between the last fill line and the border of the object

Figure 3-8 shows the feature when it is filled.

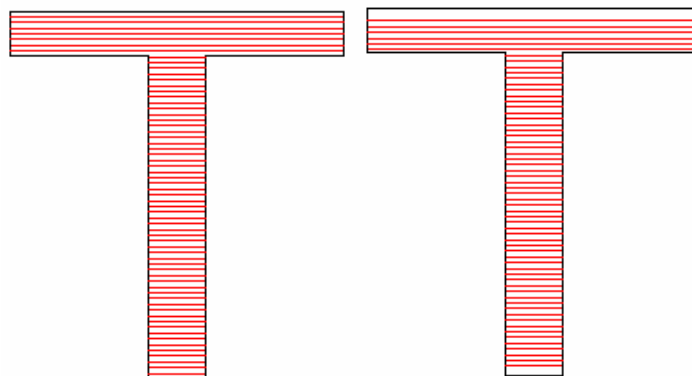


Figure 3-8 Offset Distances

(The left figure is the object when the **Start offset** and **End Offset** are 0, and the right figure is the object when the **Start offset** and **End Offset** are both 0.5.)

3.6 To Curve

“To Curve” turns the current selected vector graphics object into curve object.

Chapter 4 Draw Menu

“Draw Menu” consists of various common items for drawing, for instant, Dot, Line, Curve, Polygon, etc. Draw Menu has a Toolbar correspondingly, and all the operations can be achieved by pressing the icon on the Toolbar. For example, as Figure 4-1 shows, when you have selected the drawing command or the icon in Toolbar, the Present Command Toolbar on the top of the main window will be changed to show some options of the current command.

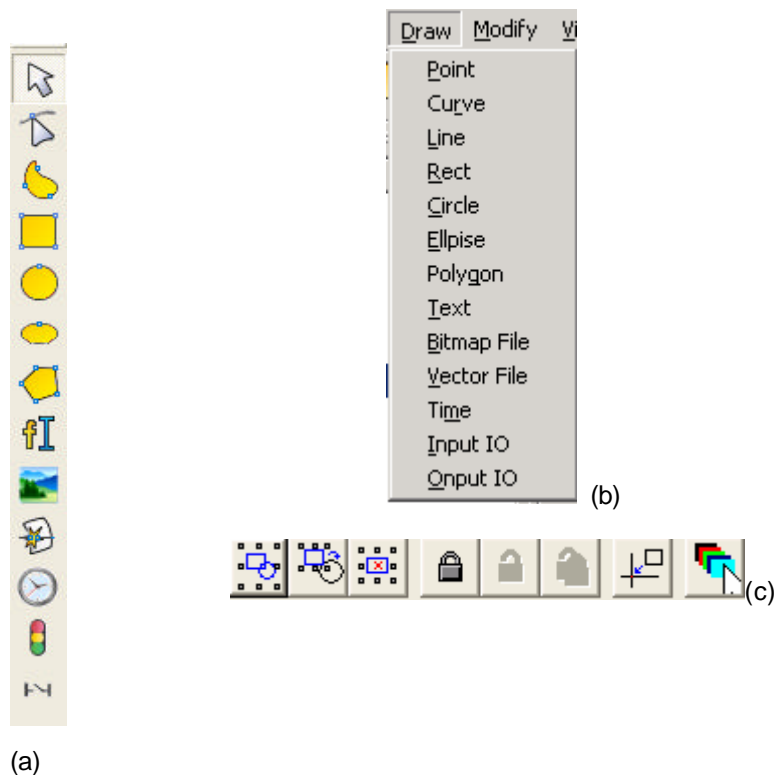
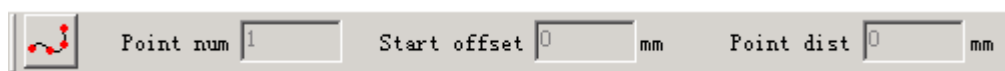



Figure 4-1 Draw Menu
(The three pictures above stand for: (a) Draw ToolBar; (b) Draw Menu; (c) Command Toolbar)

4.1 Point (D)

To draw a dot in the working space is one of the easiest drawing operations. When selected, the mouse pointer will be changed into a cross feature, and users just press the left button of the mouse in an appropriate place, a dot can be drawn. Also users can draw more dots by pressing the left button, when it is finished, user can press the right button of the mouse to end the drawing command, and then the last dot drawn is displayed as selected object.

Under dot drawing mode, the Present Command Toolbar will be displayed as:




If users press button , a set of dots with equal distance will be placed along a curve.

Point num: the amount of dots settled on the curve

Start Offset: the distance between the first dot and the beginning of the curve

Point dist: the distance between the two bordered dots

4.2 Curve

To draw a curve, users can select command “Curve” in the Draw Menu or click the icon . (Figure 4-2)

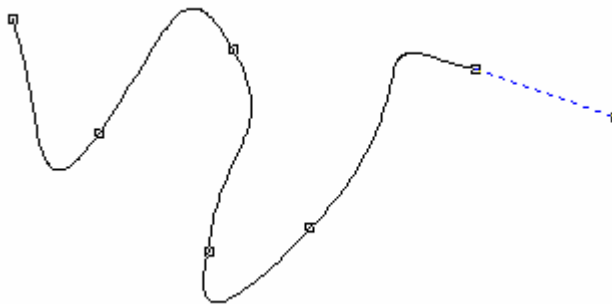


Figure 4-2 Draw a Curve

When command “Curve” selected, users can draw free curves by pressing the left button of the mouse and drag it.


When command “Curve” selected, users can move the mouse to the nodes on the middle of the curve and press the left button of the mouse to delete the current node.

When “Curve” commands selected, user can move the mouse to the node on the beginning of the curve and press the left button of the mouse to close the current curve automatically.

When command “Curve” selected, users can move the mouse to the node on the end of the curve and press the left button of the mouse to change the node of the current object into “sharp”.

When command “Curve” selected, users can move the mouse to the points which are not nodes and press the left button of the mouse to add a node to the current position of the curve.

4.3 Rectangle

To draw a rectangle, users can select command “Rectangle” in Draw Menu or click the icon .

Under the command “Rectangle”, users can press the left button of the mouse and drag it to draw a rectangle.

Under the command “Rectangle”, users can draw a square by pressing the left button of the mouse and drawing it when press “Ctrl” key synchronously.

After drawing and selecting, the Properties Toolbar will display a feature like Figure 4-3 shows.

Arc radius: This refers to the smooth degree of the rectangle's four corners, and when the degrees are 100%, then the rectangle changes into a circle.

All corner Round: When selected, users can change the angles of the four corners at the same time just by changing one of them.

NOTE: After changing the parameters in the Properties Toolbar each time, we must click “Apply” button to update the object with new parameters.

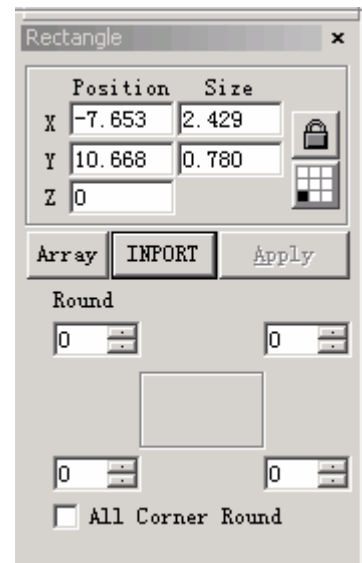



Figure 4-3 Rectangle Properties

4.4 Circle

To draw a circle, users can select command “Circle” in the Draw Menu or click the  icon.

Under the command “Circle”, users can press left button and drag it to draw a circle.

After drawing and selecting, the Properties Toolbar will display a feature like Figure 4-4 shows.

Diameter: the diameter of the circle

Starting Angle: the angle between the starting point and the centre of a circle



: This figure refers to the drawing direction of the circle is clockwise.



: This figure refers to the drawing direction of the circle is anticlockwise.

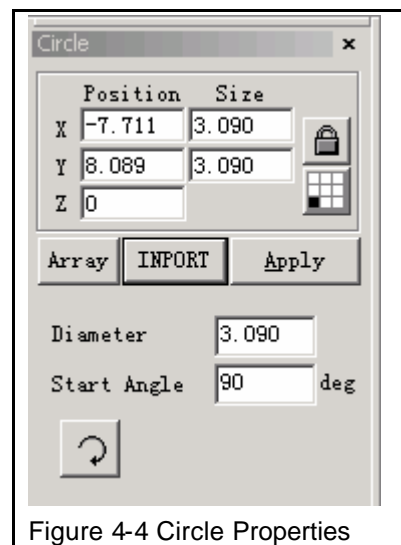


Figure 4-4 Circle Properties

4.5 Ellipse

To draw an ellipse, users can select command “Ellipse” in Draw Menu or click the



Under the command “Ellipse”, users can press the left button of the mouse and drag it to draw an ellipse.

Under the command “Ellipse”, users can draw a circle by pressing the left button of the mouse and drawing it when press “Ctrl” key synchronously.

After drawing and selecting, the Properties Toolbar will display a feature like Figure 4-5 shows.

Start Angle: the angle between the starting point and the centre of an ellipse

End Angle: the angle between the ending point and the centre of an ellipse



: This figure refers to the drawing direction of the ellipse is clockwise.



: This figure refers to the drawing direction of the ellipse is anticlockwise.

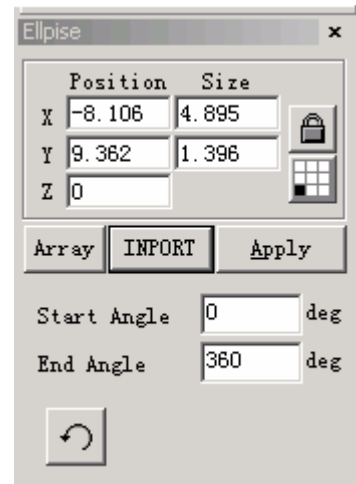



Figure 4-5 Ellipse Properties

4.6 Polygon

To draw a polygon, users can select command “Polygon” in Draw Menu or click icon .

Under the command “Polygon”, users can press the left button of the mouse and drag it to draw a polygon.

After drawing and selecting, the Properties Toolbar will display a feature like Figure 4-6 shows.

Edge Num: This item indicates the number of the polygon's borders, and that is at least three. Normally the border number is less than ten, and with borders more than ten the polygon will look like a circle.



: When selected, the current polygon to be drawn will be a convex polygon.



: When selected, the current polygon to be drawn will be a star.

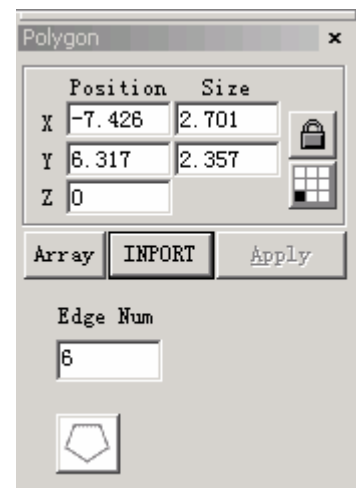


Figure 4-6 Polygon Properties

4.7 Text

Typing text directly in the workspace is supported in YmMarker2.0, and many types of fonts are supported. To type text, users can select command “Text” in the Draw Menu or

click icon .

Under the command “Text”, users can set up a starting point at any position wanted in the workspace to type characters by left click mouse.

4.7.1 Character Properties

When selected, the Properties Toolbar will display a feature like Figure 4-7 shows. Users may change the characters by typing in the text box.

YmMarker2.0 supports four types of text. (Figure 4-8)

When users select a type, a font list under that type will appear to show all the available fonts. Figure 4-9 is the list of TrueType.

Figure 4-10 is the list of Barcode Type.

Height: the average height of characters



Figure 4-11 shows the dialog box after clicking this icon.



When selected, the current text aligns left.



When selected, the current text aligns center.



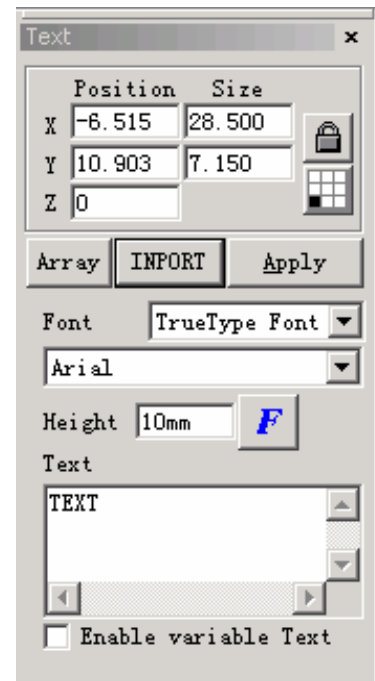
When selected, the current text aligns right.

Char Width: the average width of characters

Char Angle: the degrees the characters incline

Char space: the distance between characters

Lines space: the distance between rows



4-7 Character Properties

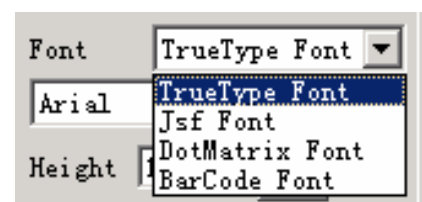


Figure 4-8 Types of Text

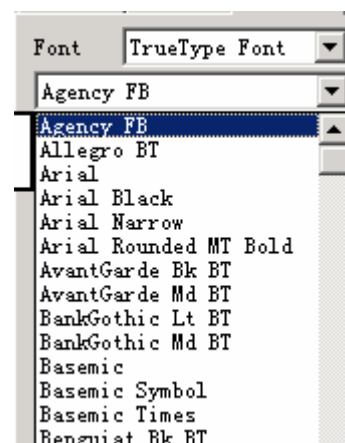


Figure 4-9 TrueType List

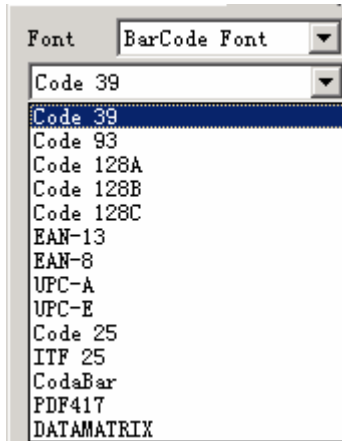


Figure 4-10 List of Barcode Type

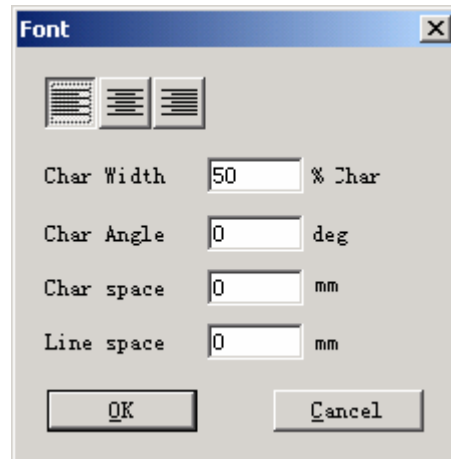



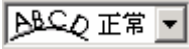
Figure 4-11 Character Options

4.7.2 Curve Text

YmMarker2.0 supports curve text, if you click a position which is close enough to a curve, then the text typed at this position will align along the curve.

If the current text aligns by curve, then

click  will show a dialog box as Figure 4-12 shows.

 : refers to the text is parallel with the tangent of the curve (Figure 4-13)

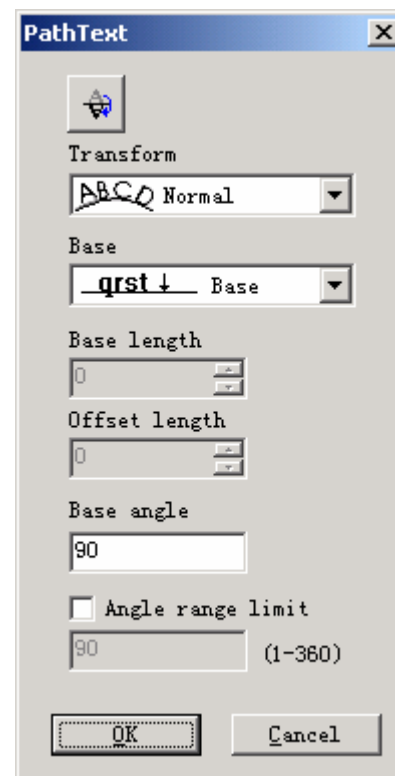


Figure 4-12 Curve Text

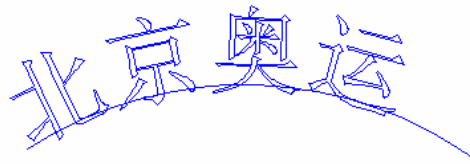
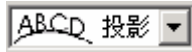


Figure 4-13 Default Feature



: refers to the text is settled vertically (Figure 4-14)

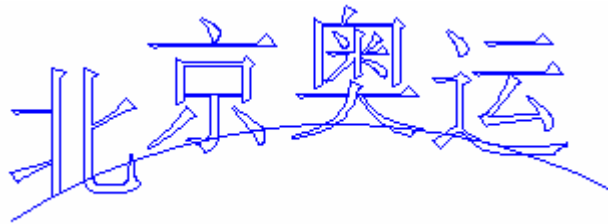
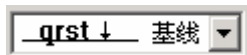
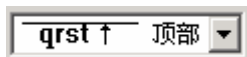


Figure 4-14 Settled Vertically



: refers to the baseline of the text is superposable with the curve (Figure 4-13)



: refers to the top of the text is superposable with the curve (Figure 4-15)

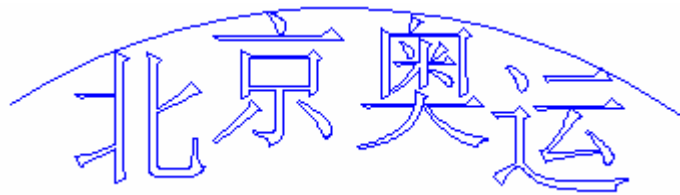
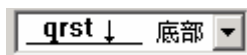


Figure 4-15 Top Position



: refers to the bottom of the text is superposable with curve (Figure 4-16)

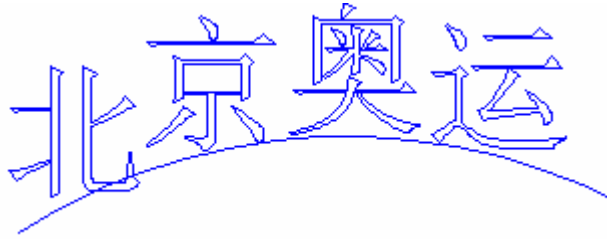
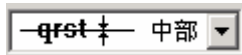


Figure 4-16 Bottom Position



: refers to the middle of the text is superposable with curve (Figure 4-17)

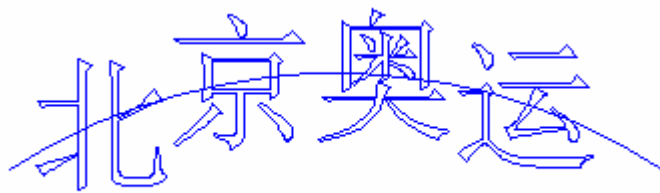
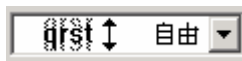


Figure 4-17 Middle Position



: This item refers to the text can be located by any types of position freely. (Figure 4-18)



in

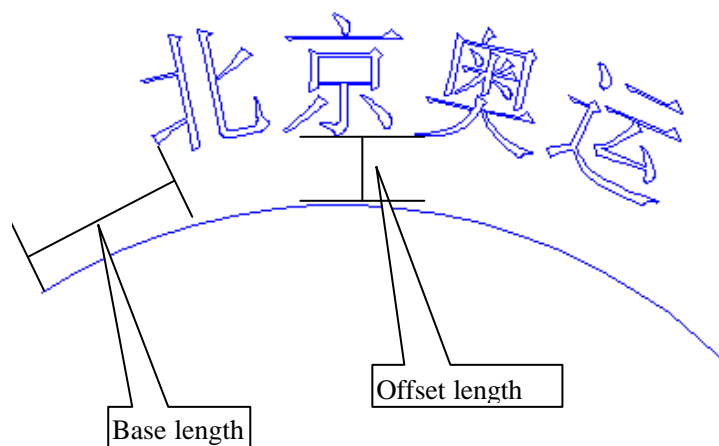


Figure 4-18 Free Position



: This icon refers to putting the text on the other side of the curve, and Figure 4-19 is the feature when Figure 4-13 has been customized in free position.



Figure 4-19 Put the text on the Other Side

Base angle

☐ Angle range limit
 (1-360)

: These two items are available only when the text is located on a circle.

Base Angle: The benchmark of the text aligning the circle.

Angle range limit: When checked, no matter how much chars that users type in, the text will be limited in the angle range. (Figure 4-20)



Figure 4-20 A Comparison of Two Texts (Limiting Angle is 45 degrees.)

4.7.3 Barcode Text



When users click the icon, a dialog box will be displayed as Figure 4-21 shows.

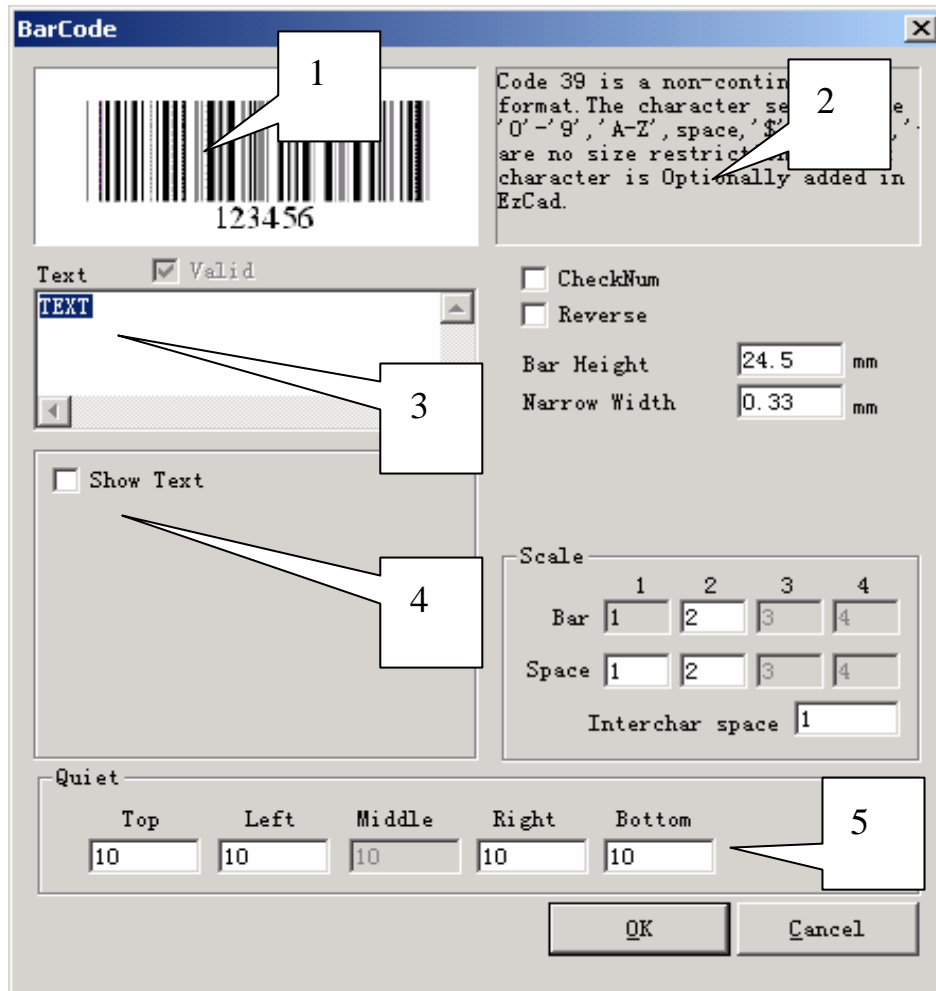


Figure 4-21 Barcode Text

1. Sketch Map
The sketch map is that the current barcode will look like.
2. Barcode Information
The barcode explanation shows some information about the current barcode's format, and if users are not very clear with the format, it is recommended to read the tip first to get to know what types of characters is valid.
3. Text
This item refers to the text to be made into barcode. And if the characters users types in the Text space is valid, there will be a cross selected in ☒ 有效 which shows the current characters are valid for being made into a barcode.
4. Show Text
whether to show an corresponding text under the barcode (Figure 4-22)

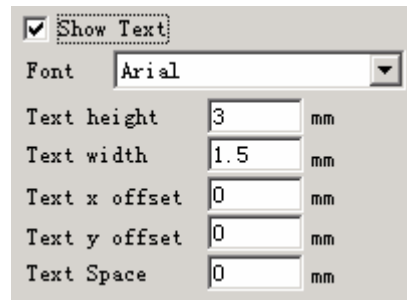


Figure 4-22 Show Text

Font: The font of the current characters to be displayed

Height: the height of the characters

Text X Offset: When selected and set up, the text displayed under the barcode will be moved towards either the positive or the negative directions of X axis.

Text Y Offset: When selected and set up, the text displayed under the barcode will be moved towards either the positive or the negative directions of Y axis.

Text Space: the space between characters

5. Quiet:

Refer to the size of the barcode's blank area, when let the barcode "Reverse" valid.

- One-Dimensional Barcode

This kind of barcode consists of **bar** and **space** one by one. The barcode information is carried by different width and position of the **bars** and **space**, and the information volume they carry is decided by the width and the precision. Wider the barcode is, more the **bars** and the **space** included, and more information carried. This kind of barcode technology can store information towards only Unidirection through permutation and combination of the **bars** and the **space**, and so it is called one-dimensional barcode. Figure 4-23 shows a feature of parameter setting when a one-dimensional barcode is chosen.

CheckNum : This refers to whether the current barcode needs verify code. Users can freely choose which barcode they would like to add verify code on, and users have the decision whether to use the verify code or not.

Reverse : This refers to whether to reverse the parts which should be marked into the unexpected parts of an object. This function is used in some materials which appear light color after the marking.

Bar Height: the height of the barcode

Narrowest Width: This refers to the width of unit **bar**. Commonly a one-dimensional barcode consists of **bars** with four types of width and **space** with four types of width, 1 \ 2 \ 3 \ 4. The narrowest bar's width indicates the width is 1 unit.

☐ CheckNum
☐ Reverse
 Bar Height mm
 Narrow Width mm

Scale
 Bar
 Space
 Interchar space

Figure 4-23 One-Dimensional
Barcode Parameter Setting

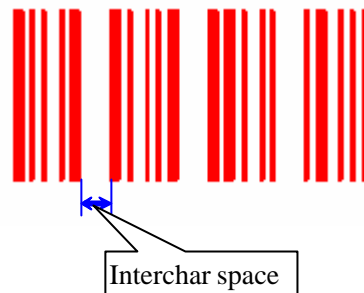


Figure 4-24 Characters' Distance

5. **Interchar space:** It is prescribed that some barcodes have distance between characters. (e.g. Code 39) This parameter is used to set this like Figure 4-24 shows.
6. Scale:
 - Bar:** setting the width of one bar.
 - Space:** setting the width of the space,
7. Quiet:
 - Refer to the size of the barcode's blank area, when let the barcode "Reverse" valid. The actual size of the blank area is the multiple of the unit bar.

- Two-Dimensional Barcode

1. PDF417 Barcode

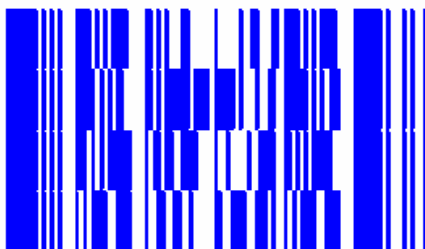


Figure 4-25 PDF417 Barcode



Figure 4-26 Compress PDF417
Barcode

PDF is the abbreviation of the Portable Data File. Figure 4-25 is the demonstration of PDF417 Barcode and Figure 4-26 of the Compress PDF417 Barcode. Figure 4-27 is

the parameter setting of the PDF417 Barcode.

Bar Height: the height of the barcode

Narrow Width: This refers to the width of the unit bar.

Level: the Error-Checking Level of PDF417 barcode, from 0 to 8

Lines and Columns: the lines and Columns of PDF417 barcode

Figure 4-25 shows a feature of a barcode with the row's number is four and the column's is four.



Figure 4-27 PDF417 Parameter

2. Data Matrix Barcode:

Data Matrix is a kind of two-dimensional barcode based on Matrix, and currently there are two types: Ecc000-140 and Ecc200. YmMarker2.0 supports Ecc200 at present.

Figure 4-28 shows the parameter setting of Data Matrix Barcode.

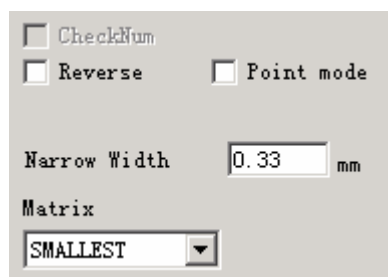


Figure 4-28 Data Matrix Barcode
Parameter Setting

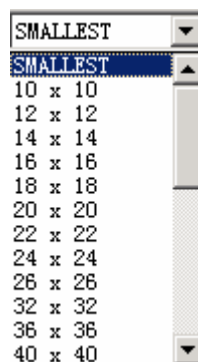


Figure 4-29 Data
Matrix Barcode Size

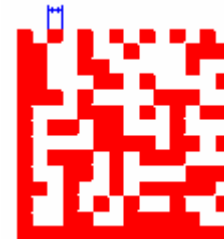


Figure 4-30 Data Matrix
Barcode Width

Data Matrix has various fixed size, and users can choose what they want. If the smallest size is chosen, the system will automatically select the smallest frame to fit the all text users have typed.

Narrow Width: the width of the unit bar (Figure 4-30)

4.7.4 Variable Text

The function of variable text is available after ☐ Enable variable Text is selected. Variable Text is a disciplinary and dynamic text which can be customized during the operation.

Types of Variable Text: Currently YmMarker2.0 supports 5 types of variable text, as Figure 4-31 shows.

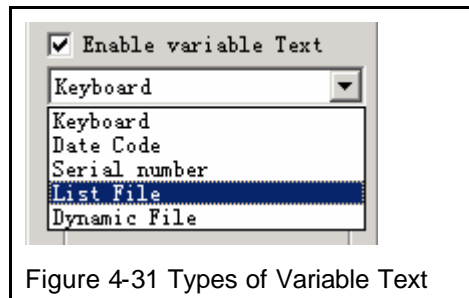


Figure 4-31 Types of Variable Text

Keyboard: Users can type text to be marked through keyboard when the marking is in process.

Time and Date: When the operation is taking place, the system will automatically pick up the time and date information from the computer as a new formed text.

Serial number: The system will change the text according to the fixed increment in the operating process.

List File: The system will seriatim read what to be marked in the customized text file line by line.

Dynamic File: the text which the system will read in appointed format

Keyboard:

Keyboard Text is the text which users type through keyboard. When selected, the system will display a dialog box as Figure 4-32 shows to ask users to set Keyboard Texts Parameter.

Never Prompt: This item indicates there will be no prompt asking users to change the text to be marked when in process.

Part Prompt: When selected, the system will ask users to type the text to be marked when meeting the Keyboard Variable Text. As the Figure 4-33 shows, now users can type the text to be marked directly.

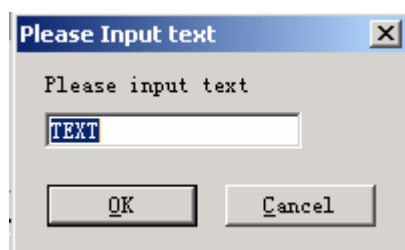


Figure 4-33 Type the Text Name

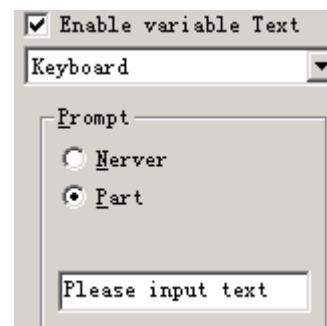


Figure 4-32 Keyboard Text Parameter

Time and Date:

When the operation is taking place, the system will automatically pick up the time and date information from the computer as a new formed text.

When selected, a time and date preview list will be shown in the variable dialog box automatically. As Figure 4-34 shows, users can directly choose the type they prefer from the Time and Date list.

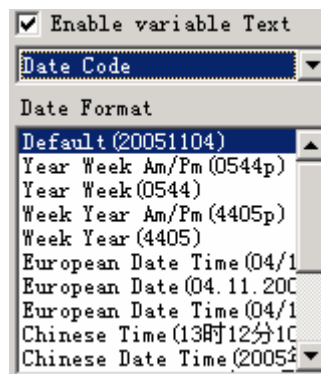


Figure 4-34 Time and Date List

If there is no format users prefer in the Time and Date List, you can create your own format.

Now below is an example to create a format of "My2005.6.12Date21:24:13Time:Afternoon".

1. First of all users can create a blank text file named "MyTest.date" under the directory of "YmMarker/Date" (You can use any type of text editor to create this file.) and then open it in text editor.
2. Type the following text in the "MyTest.date" file:

```
[EZCAD_DATE_FORMAT]
```

```
DATE_ NAME = My Date Test
```

```
[DATE]
```

```
FORMAT = 1Y2M2D3H4M4S54N
```

```
YEAR_2DIGIT = 0
```

```
NOLEADZERO = 0
```

```
HOUR12 = 0
```

```
1 = My
```

```
2 = .
```

```
3 = Date
```

```
4 = :
```

```
5 = Time
```

```
AM = Morning
```

```
PM = Afternoon
```

Now you can save the file, and after restarting the YmMarker2.0, the Time and Date Format which you have just created will appear in the Available Text Dialog Box, as Figure 4-35 shows.

Below is a detailed explanation which shows the meanings of each line in the text file, and when you understand the contents, you can freely create various Time and Date format.

- DATE_ NAME: the name of date displayed in the Time and Date List

- [DATE]: the parameter marks of the date, does not need to be changed
- FORMAT: the setting of date format
1Y2M2D3H4F4S54N
Y: year
M: month
D: date
H: hour
F: minute
S: second
H: a.m. or p.m.

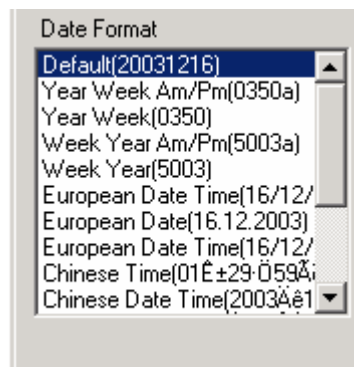


Figure 4-35 Customize the Date Format

YEAR_2DIGIT: This item refers to whether to use two Arabic numerals to display year. If you set this item like this "YEAR_2DIGIT = 0", the year will be displayed of four Arabic numerals; if you set as "1", then it will be two Arabic numerals.

NOLEAADZERO: This item refers to whether to add a leading zero in front of numbers. For example, when the current date or time is one Arabic numeral and you make this item as "1", then the number will be itself still; and when this item is "0", there will be a "0" appearing in front of the numbers; besides, this parameter setting will be ignored by the system if the date and time has already been two Arabic numerals.

HOUR12: This item refers to whether to use 12-hour-setting or not. When the item is "1", for example, 18 o'clock will be displayed as 6; and when "0", 18 o'clock is 18 itself.

"0 - 9": In the date and time setting, all the Arabic numerals is variable, and those numbers indicate character strings customized by the users. Users can freely customize what text does "0 - 9" indicate. For example, we customize "0 - 5" as the following meanings:

- 1 = My
- 2 = .
- 3 = Date
- 4 = .
- 5 = Time

AM: a character string indicating that the current time is in the morning

PM: a character string indicating that the current time is in the afternoon

So, if it is 18 o'clock 30 minutes 40 seconds p.m. June 20th, 2005, then the customized date and time format can be as the chart shows below.

1	Y	2	M	2	D	3	H	4	F	4	S	5	4	N
My	2005	.	06	.	20	Date	18	:	30	:	40	Time	:	Afternoon

It is displayed as: My2005.06.20Date18:30:40Time:Afternoon

Serial number:

Serial number text is a text which is changed according to the fixed increment when in the operating process.

When selected, a serial number parameter setting will automatically appear in the variable text dialog box. (Figure 4-36)

Figure 4-36 Serial Number Parameter Setting

Start: This item indicates the first serial number to be marked at the present, and it can be any ASCII character between “0-9” / “a-z” / “A-Z”.

Current: the serial number to be marked at the present

Increment: the increment of the current serial number. The value may be plus or minus

When the increment is “1”, and if the starting serial number is 0000, there will be an increment “1” added on the previous serial number. For example, 0000, 0001, 0002, 0003 ... 9997, 9998, 9999, and when it comes to 9999, the system will be back to 0000 automatically. Another example, a,b,c ...x,y,z, when it comes to “z”, the system will back to “a” automatically; and if “A,B,C ...X,Y,Z”, the system will be back to “A”, too.

When the increment is “5”, and if the starting serial number is 0000, the serial number is: 0000, 0005, 0010, 0015, 0020, 0025 ...

When the increment is “2”, and if the starting serial number is aaaa, the serial number is: aaaa, aaac, aaad, aaag, aaai, aaak ...

Others can be analogized by this.

Marks Per: Marked Number. This item indicates how many times every serial number is marked before changing.

An “Extend” dialog box will appear when users click “Extend”. (Figure 4-37)

Prefix: the fixed text appearing in front of the Serial Number Text

Suffix: the fixed text appearing after the Serial Number Text

Reset Serial Number: When the current serial number is equal to the reset serial number, the next serial number will reset to starting serial number.

Forbid Leading Zero: This item indicates whether to elide “0” in front of the serial number. For example, 0000, 0001, 0002 ..., when checked, the serial number will be changed into “0,1, 2 ...”.

Filter: In the filtrate list, users can set 20 filter to filtrate those serial numbers users do not need.

If the starting serial number is 0000 and the increment is “1”, the serial number will be changed into:

0000, 0001, 0002, 0003, 0004, 0005 ..., 0012, 0013, 0014, 0015, 0016 ...

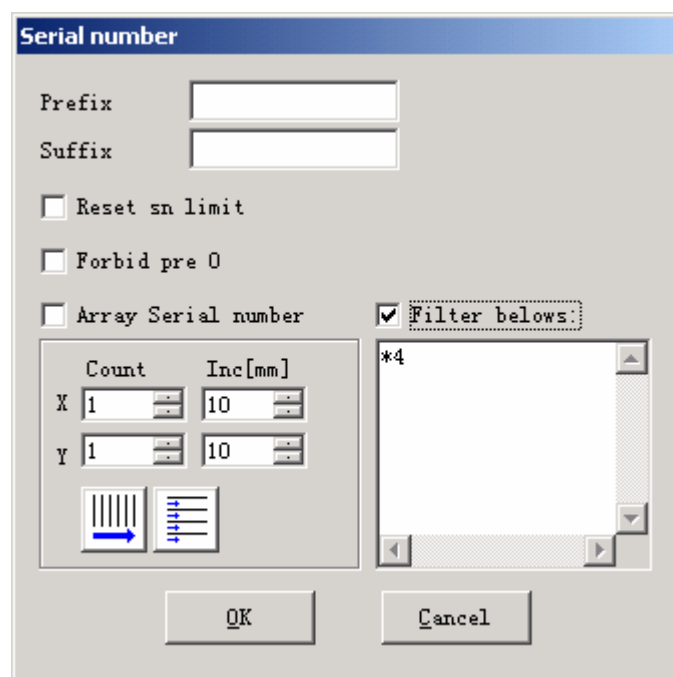


Figure 4-37 Serial Number Parameter Setting

If the filtration is “*4”, those serial numbers whose last number is “4” will be filtrated. Mark “*” is the asterisk wildcard.

Then the serial numbers will be changed into:

0000, 0001, 0002, 0003, 0005, 0006 ..., 0012, 0013, 0015, 0016, 0017 ...

If the starting serial number is 1000 and the increment is 500, then the serial numbers is:

1000, 1500, 2000, 2500, 3000, 3500 ...

If the filtration is “2*”, those serial numbers whose head number is “2” will be filtrated.

And the serial numbers is changed into:

1000, 1500, 3000, 3500, 4000 ...

Array Serial Number: This item indicates whether the serial number is changed along with the array number if the amount of the array number is above “1”.

Figure 4-38 describes a feature of how the serial number (X=3, Y=2; 0000, 0001, 0002, 0003, 0004, 0005) is marked when the item “Array Serial Number” is unchecked, and the

operation will mark six "0000"s and six "0001"s ...

Figure 4-39 describes a feature of how the serial number (X=3, Y=2; 0000, 0001, 0002, 0003, 0004, 0005) is marked when the item "Array Serial Number" is checked, and the system will mark 0000-0005 first, then 0006-0010 and the rest may be deduced by analogy.

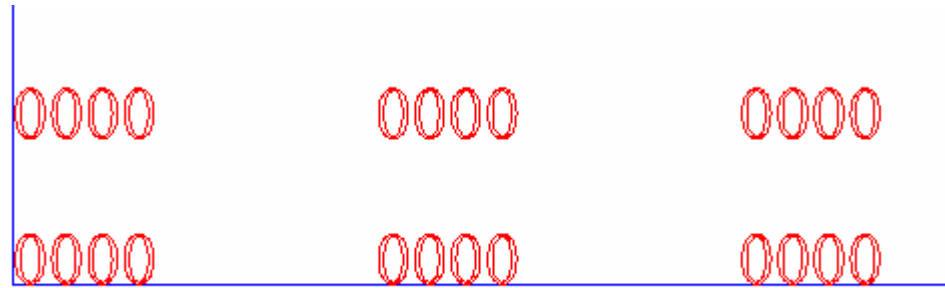


Figure 4-38 Array Serial Number unchecked

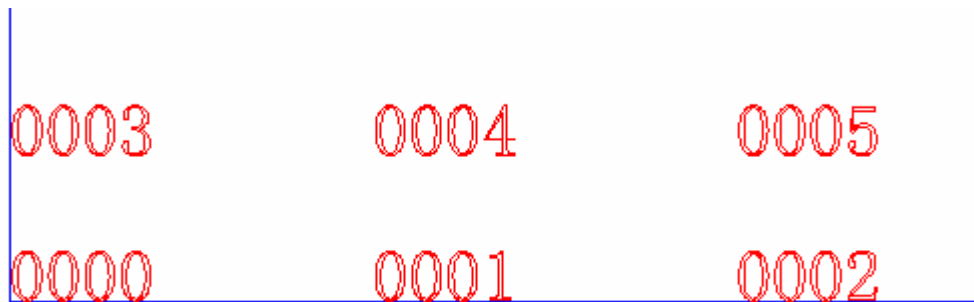


Figure 4-39 Array Serial Number checked

List File:

The List File selection is used to set up sequential input of data from a disk file. At runtime, List File allows a text string to come from a disk file such as a mailing list. Each time the program is run for marking, the next record in the file is used to fill in the text. Thus, a series of parts with different data can be run without operator input of data. . When selected, a dialog box as Figure 4-40 shows will be displayed to ask for the listed file's name and the current text's line number.

Txt files and Excel files are supported now.

1) Txt files

We have to appoint the file name, Line number to tell the software which line in the text file will be the first line to be marked.

Auto reset: If checked, the line number will change to 0 automatically when reach the last line. The next mark will start from the first line again.

2) Excel files

We have to appoint the file name, Field name, Line number to tell the software which cell in the excel table will be mark.

Field name: The text string of the first row in the datasheet1. This parameter indicates which column will be marked.

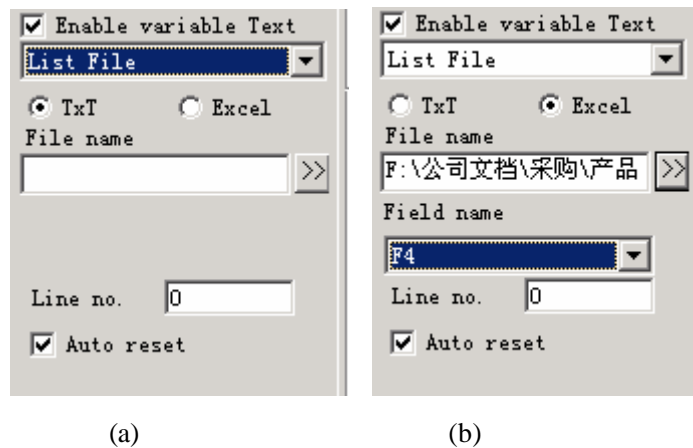


Figure 4-40 Listed File Parameter Setting

Dynamic File:


Dynamic File refers to the text file which the system will mark in appointed format.

When selected, the variable text dialog box will be changed into the feature as Figure 4-41 shows.



Figure 4-41 Dynamic File Setting

File Name: This item refers to the text file's name. When in process, the system will automatically open this file and pick up the text information to mark. In auto-product line, users may use other software to open this file and modify text information.

 **Browse File:** Users may click this button to browse the computer and select the text files they want.

Caution: The text format the variable text requires must accord with the variable text format determined by YmMarker2.0. (Figure 4-42)

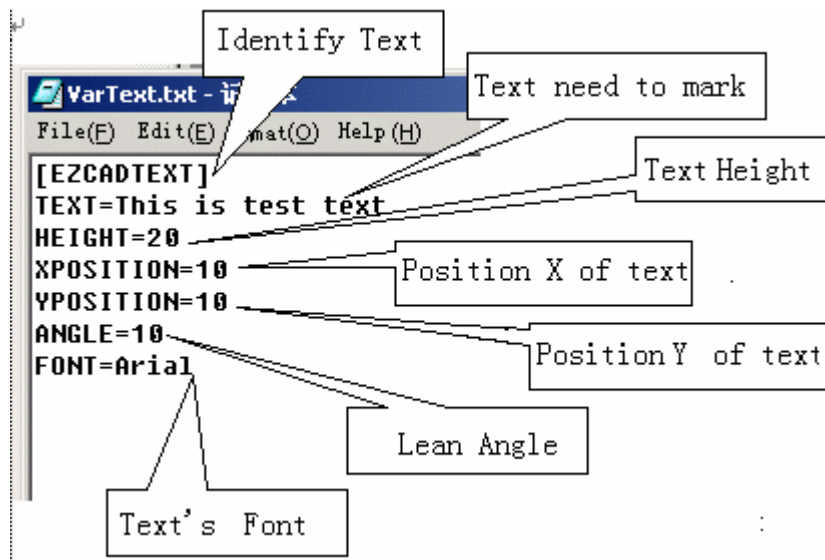


Figure 4-42 YmMarker2.0 Variable Text Format

[EZCADTEXT]: This is the identifier of the YmMarker2.0 Variable Text, and if there is no identifier, the system will regard the current file as an invalid text file.

TEXT: This is the text needed in the marking process, and it can not be elided, or the system will not find the parameter so as not to mark any object.

The following parameters can be elided, and if there is no parameter, the system will use the current setting directly.

HEIGHT: the average height of the text; unit: millimeter

XPOSITION: the X coordinate of the first character's left bottom corner in the text; unit: millimeter

YPOSITION: the Y coordinate of the first character's left bottom corner in the text; unit: millimeter

ANGLE: the angle between the X-axis and the text

FONT: Font is a complete set of type of one size and face. Users may pay attention to the capital characters, and the font of the characters must be those supported in YmMarker2.0.

Figure 4-43 is the text object defined by the parameters used in Figure 4-42.

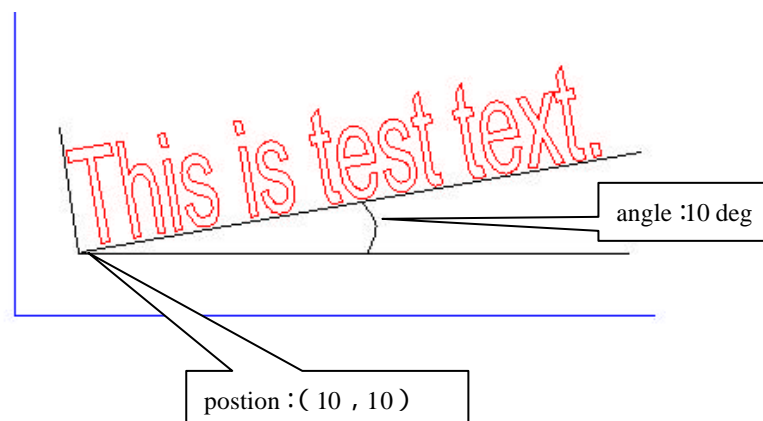


Figure 4-43 The Display of Figure 4-42 in YmMarker2.0

4.8 Bitmap


To add a photo, users may select command “Bitmap” in the Draw Menu or click icon  in the Toolbar



Figure 4-44 Add a photo

Then the system will pop a dialog box as Figure 4-44 shows to open a graphic file.

The current supported graphic file formats are:

Bmp

Jpeg, Jpg

Gif

Tga

Png

Tiff, Tif

Show Preview: When users select a graphic file, there will be a preview displayed in the dialog box.

Put to center: put the photo's center in the origin

When finishing adding a photo, a “Bitmap” parameter setting will appear in the Property Toolbar as Figure 4-45 shows.

Dynamic file: whether to reread files when in process.

Fixed DPI: When selected, the system will fasten the unfixed DPI of dynamic photo. The higher the DPI's level is, the closer the dots gather; and the photo's precision is better, then the marking time is longer.

DPI: dot per inch; 1 inch is about 25.4 millimeters

Fixed Size X: When checked, the width of the dynamic photo will be preserved in an appointed size, and if unchecked, the photo's width will be the original size of the photo.

Fixed Size Y: When checked, the height of the dynamic photo will be preserved in an appointed size, and if unchecked, the photo's height will be the original size of the photo.

Fixed position: the benchmark the dynamic photo based on while in size changing

Image Manipulation:

Invert: run negative effect on photos (Figure 4-46)

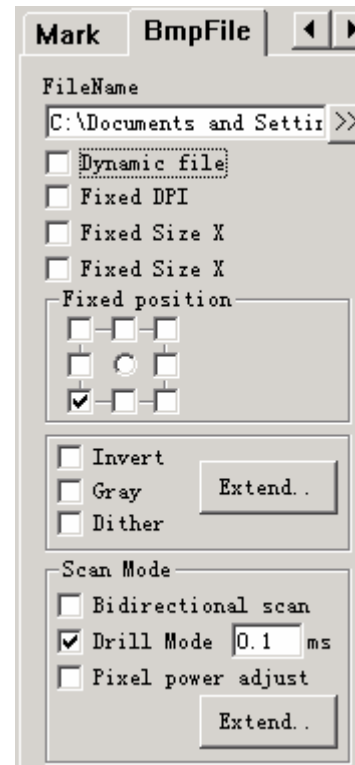


Figure 4-45 Bitmap Parameter



Figure 4-46 Invert Effect (Left is original.)

Gray: change color photos into grey of level 256 (Figure 4-47)



Figure 4-47 Color and Grey (Left is original.)

Dither: This effect is similar with the function “Grey Adjust” in Adobe PhotoShop. It uses color black and white to simulate grey image, so as to achieve a grey effect with dots arranged in different densities, as Figure 4-48 shows. (The white bar in the photo was caused by display, which will not be marked.)



Figure 4-48 Dither

Click the “Expand” button to run the “Bitmap” dialog box. (Figure 4-49)

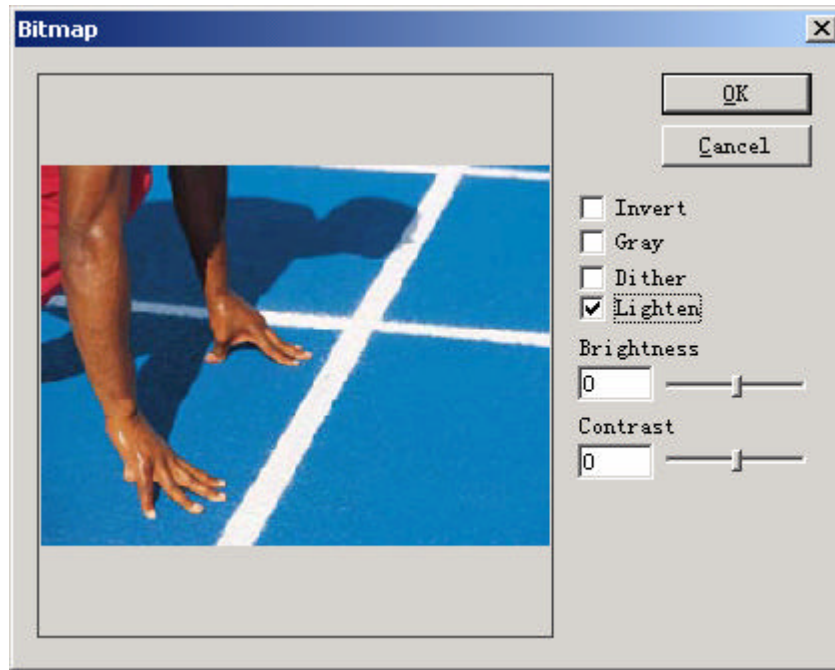


Figure 4-49 Bitmap Dialog Box

Lighten: adjust the current image's brightness and contrast values.

Scan Mode:

Bidirectional Scan: the scan mode is bidirectional when in marking process (Figure 4-50)

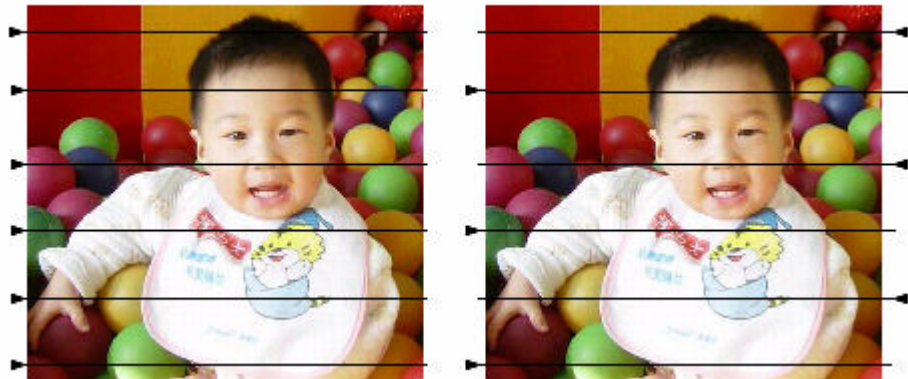


Figure 4-50 Left is unilateral scan; right is bidirectional.

Mark Mode:

Drill mode: whether the laser is kept on or restricted in appointed time for each dot's marking when in process

Adjust Power : whether the laser's power is adjusted according to each dot's grey level when in process

Expand Parameter: Figure 4-51

Y Scan: The scan will run along Y axis line by line.

Scan line Increment: This item indicates whether to scan line by line or skip some lines. This function may quicken the marking speed when in low precision marking requirement.

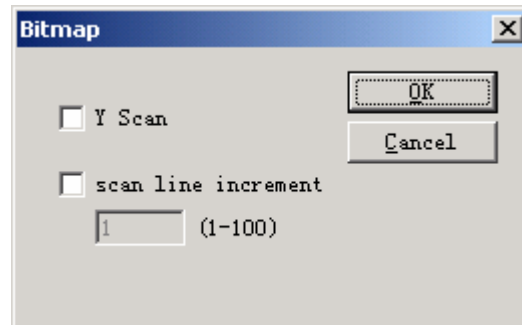


Figure 51 Scan Parameter

4.9 Vector File

To input a vector file, users can select command "Vector File" in Draw Menu or click



icon

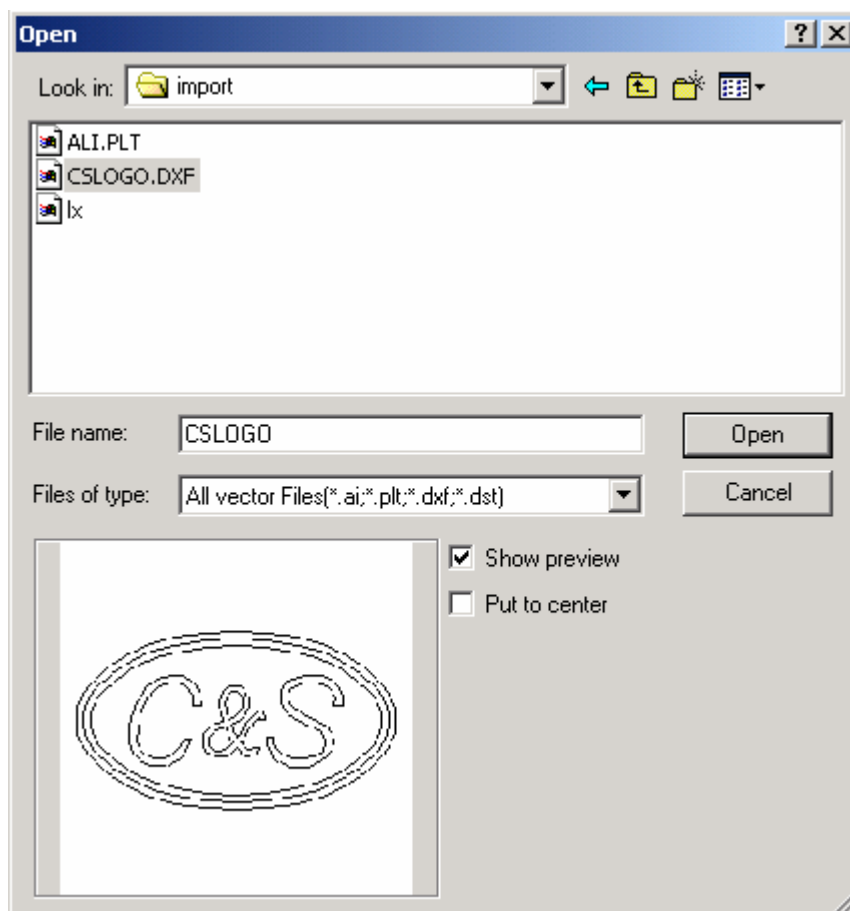


Figure 4-52 Input a Vector File

There will be a dialog box pop up to ask for the vector file to be inputted.

The current supported vector file formats are:

PLT
DXF
AI
DST

NOTE: If the vector files includes color information(when draw it by image software like CoreDraw, AutoCAD, Photoshop and so on), Ezcad can distinguish the color automatically. Then user can pick the object according to the color or pen(see Chapter 4.12) and set marking parameters(see Chapter 8.1 “color”, “pen”)

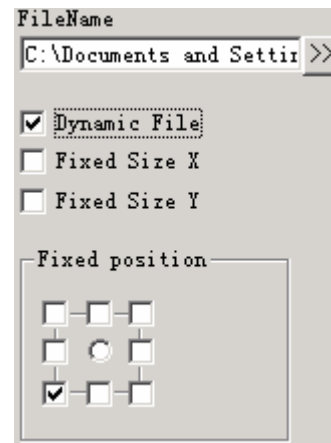



Figure 4-53 Vector File Parameter Setting

When users have opened an vector file, a vector file parameter setting as Figure 4-53 shows will appear.

4.10 Time-lapser

To input the Time-lapser, users can select command “Time-lapser” in Draw Menu or click  icon.

When selected, there will be a property setting of the time-lapser displayed in the Property Toolbar as Figure 4-54 shows.

Waiting time: The marking will pause until the specific time has passed.

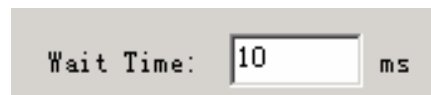



Figure 4-54 Waiting Time

4.11 Input Port

To check the Input signal, users can select command “Input Port” in the Draw Menu or click  icon.

When selected, there will be an input port property setting appearing in the Property Toolbar as Figure 4-55 shows.

I/O Control Condition: The software will pause until the input signal is the same as the I/O control condition.

Message: If checked, the software will pop up a message box to info the user. The message text can be custom defined.

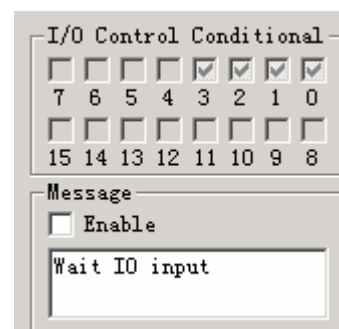



Figure 4-55 Input Parameter

4.12 Output Port

To output signal, users can select command “Output Port” in the Draw Menu or click the icon .

When checked, there will be an output port property setting appearing in the Property Toolbar as Figure 4-56 shows.



: This icon indicates that the system will export a high-level voltage (TTL compatible) when the operation is taking place at the current output port.



: This icon indicates that the system will export a low-level voltage (TTL compatible) when the operation is taking place at the current output port.



: This icon indicates that the system will export a fixed-level.



: This icon indicates that the system will export a pulse.

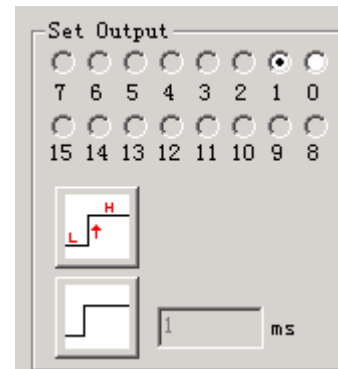


Figure 4-56 Output Parameter

4.13 Select



Icon  on the top of the Draw Toolbar is used to select object. The pressed-down state of this icon indicates that the current command is “select”. Now, you can use mouse to click object in the workspace to select it. YmMarker2.0 software has “auto-snap” function. When you move the mouse in the workspace and approach to a curve, the mouse pointer will automatically be changed into , and now you can press the left button of the mouse to select the object.



Figure 4-57 Select Toolbar

You can also select an object by moving the mouse while pressing the left button of the mouse, and there will be a dashed frame appearing in the area as the mouse move. This selection method is called “Frame Select”. If the moving direction of the mouse is from left to right, then only the objects completely involved in the dashed frame will be selected; and if the

moving direction of the mouse is from right to left, then all the objects touched by the dashed frame will be selected.

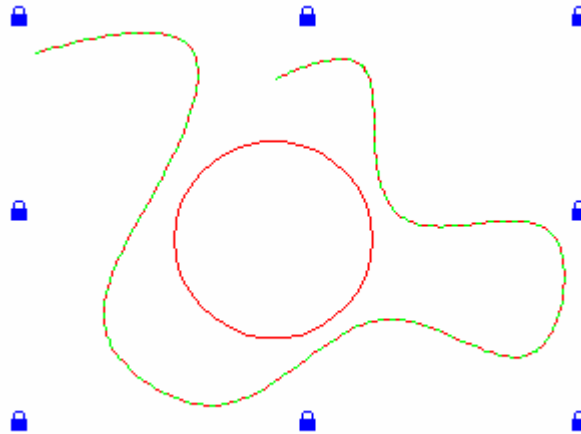


Figure 4-58 Lock an Object

When command "Select" is chosen, a Select Toolbar will appear, and you can achieve some specific operations. (Figure 4-57)



: This icon indicates to select all the objects in the current workspace.



: Invert Selection



: This icon indicates to delete the current object selected.



: This icon indicates that the current object is locked. Users can not take any operation on the locked object, and there will be some lock-like icons appearing around the object.(Figure 4-58)



: unlock the object locked



: This icon indicates to unlock all the objects locked.

As Figure 4-58 shows, the Bezier Curve is locked and the circle is not, and now you can not take any operation on the curve object, such as editing, modifying, moving, zooming, etc.



: Put object selected on the origin



: This icon indicates to use different pen to select objects. When clicked, a dialog box as Figure 4-59 shows will appear.

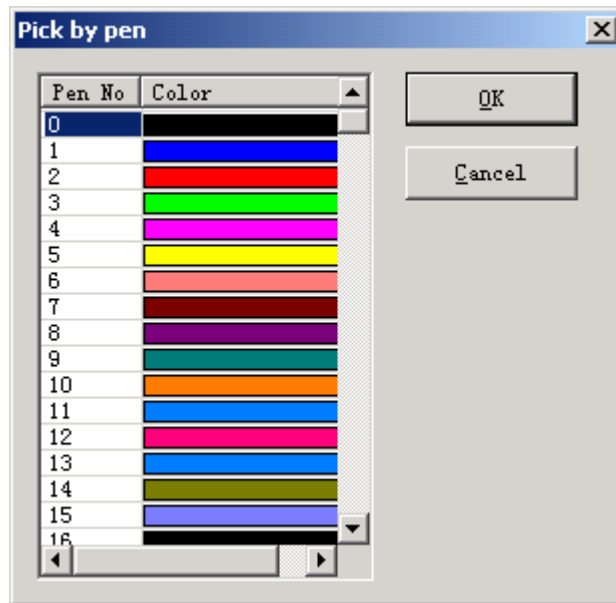



Figure 4-59 Select object by Pen

4.14 Node Editing

All the objects drawn in YmMarker2.0 are vector graphs. Users can modify an object's shape by editing the nodes.

To edit nodes, you may press icon  in the Draw Toolbar. When clicking an object in the workspace, there will be a node appearing around the object. Nodes are denoted as hollow squares, and the bigger one is the starting point of the curve. When selected, a Node Editing Toolbar will appear as Figure 4-60 shows.

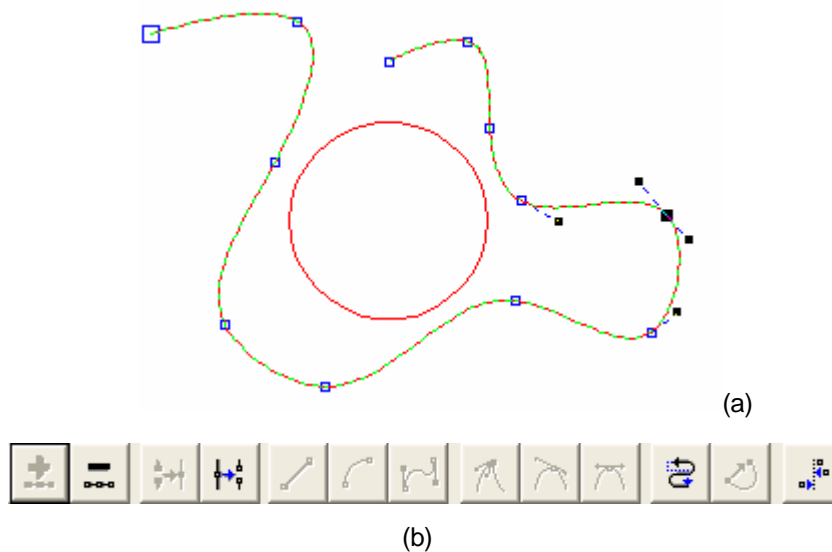















Figure 4-60 Node Editing
(a) Nodes (b) Node Editing Toolbar

- : This icon is used to add a node. When click any point on the curve where has no node, there will be a black solid circle appearing, and now users may add a node by click this icon.
- : This icon is used to delete a node. When clicking any node on the curve, the node will be blacked, and here users may click this icon to delete it.
- : This icon is used to combine two nodes. If two nodes are close enough, users may “frame select” the two nodes and click this icon to combine them into one node.
- : This icon is used to separate a node. When users click a node on the curve, the node will be blacked, and then we may click this icon to separate this node into two separated nodes.
- : This icon is used to turn curves into lines. Users may click any position between two neighbored nodes and select the command “Line” to make the curve (line/arc/curve) between the two nodes into a line.
- : This icon is used to turn curves into arcs. Users may click any position between two neighbored nodes and select the command “Arc” to make the curve (line/arc/curve) between the two nodes into an arc.
- : This icon is used to turn curves into curves. Users may click any position between two neighbored nodes and select command “Curve” to make the curve (line/arc/curve) between the two nodes into a curve.
- : This icon is used to sharp a node. When selected, a sharp will take the place of the node, and the curve is sharp.
- : This icon is used to smooth a node. When selected, the node will be changed into a smooth curve.
- : This icon is used to symmetrize a curve. If you click a node and select command “Symmetrize”, the curves on both sides of the node will be symmetrized.
- : This icon is used to change the directions of a curve, by exchanging the starting and ending points.
- : This icon is used to close a curve.
- : This icon is used to align objects. When users “frame select” more than two nodes and click this icon, a dialog box of Aligning Nodes will appears, and you can choose the ways of aligning, top, bottom, left, right, for example.

NOTE: You can not do node editing on text objects and hatch objects; you can edit the path's nodes of curved texts.

Chapter 5 Modify Menu

Commands in Modify Menu will take easy operations on selected objects, such as Transformation, Plastic, Curve Editing, Aligning, etc. (Figure 5-1)

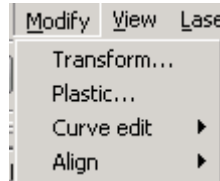


Figure 5-1 Modify Menu

5.1 Transformation

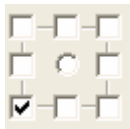
When selected, a parameter setting box will appear as Figure 5-2 shows.

5.1.1 Move



: Stroll Tool for moving objects

Position: the coordinates of the current selected object' datum mark. This function is the same as the **Position** which is introduced in object label of properties toolbar in chapter 2.10.



: select a datum mark of an object

Relative Position: use relative coordinates

Apply

: Activate the

modification

Apply to copy object

: This item is used to copy the current selected object and move it into a new place.

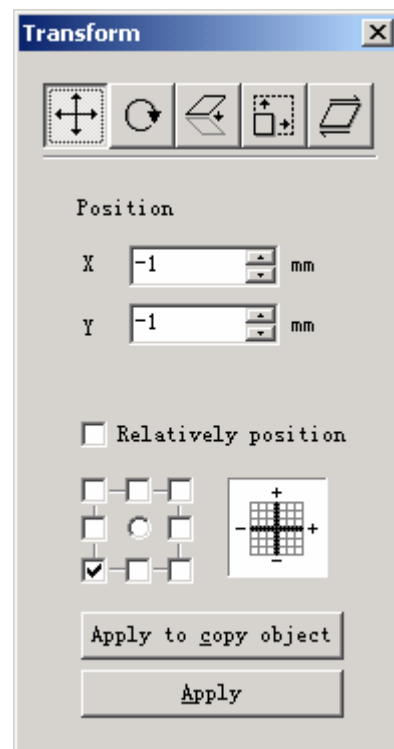


Figure 5-2 Transformation

5.1.2 Rotate

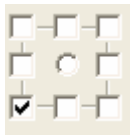


: rotate your object

When selected, a parameter setting will appear in the Transformation Setting Box as Figure 5-3 shows.

Angle: angle to rotate

Center: the coordinates of the current selected object' datum mark



: select a datum mark of an object

Relative Center: change the current coordinates into relative coordinates

Apply

: Apply. Let the

modification of the current object active

Apply to copy object

: This item is used to copy the current selected object and rotate it into a new place.

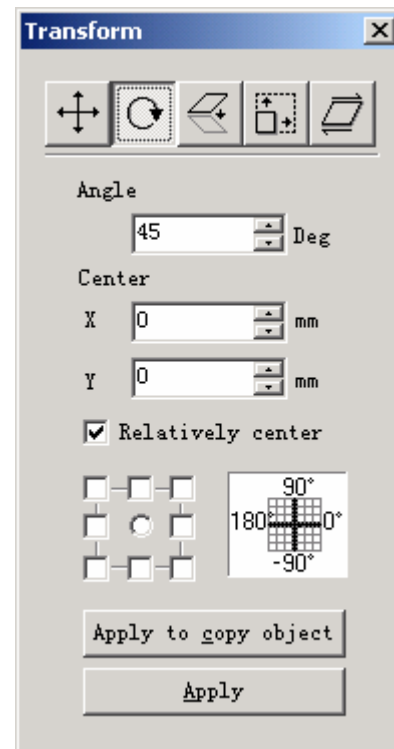


Figure 5-3 Rotate



: mirror the current selected object

When select mirror command, a parameter setting box will appear as Figure 5-4 shows.

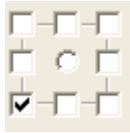
Scale: the zoom ratio of the X/Y size after being mirrored



: the current object's vertical mirror



: the current object's horizontal mirror



: select a datum mark of an object

Apply

: Apply. Let the modification of the current object active

Apply to copy object

: This item is used to copy the current selected object and mirror it into a new place.

5.1.4 Zoom



: zoom your objects

When selected, a dialog box will appear as Figure 5-5 shows.

Size: the size after zooming. This function is the same as the Size which is introduced in object label of properties toolbar in chapter 2.10.



: select a datum mark of an object

Apply

: Apply. Let the modification of the current object active

Apply to copy object

: This item is used to copy the current selected object and zoom it into a new place.

5.1.5 Lean



: lean the current selected object

When selected, a parameter setting box will appear as Figure 5-6 shows.

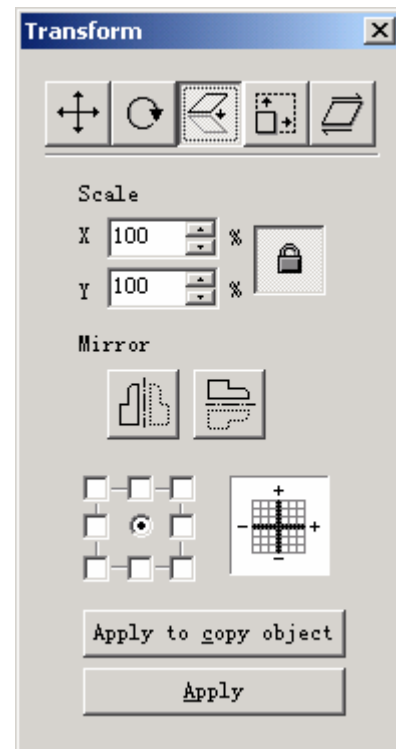


Figure 5-4 Mirror

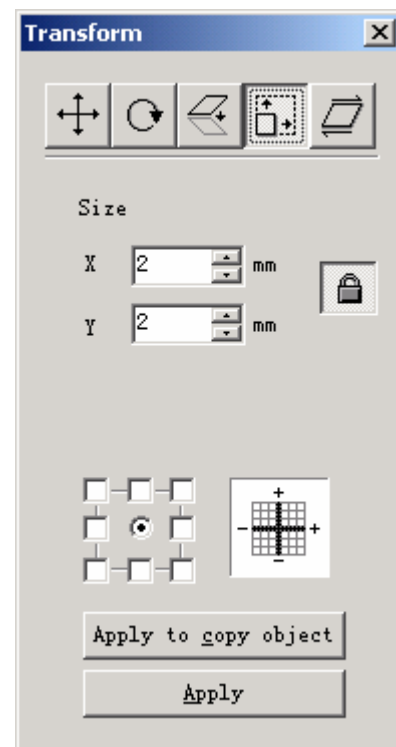
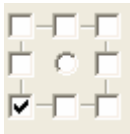


Figure 5-5 Zoom

Angle: the angle the object leans



: select a datum mark of an object

Apply

: Apply. Let the modification of the current object active

Apply to copy object

: This item is used to copy the current selected object and lean it into a new place.

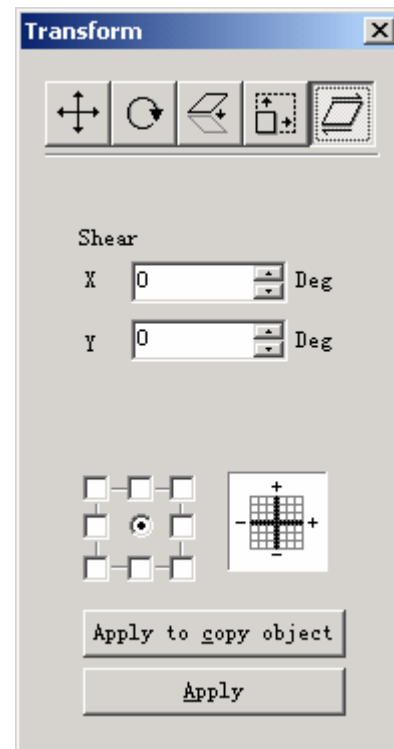


Figure 5-6 Lean

5.2 Plastic

When selected, a parameter setting box will appear as Figure 5-7 shows. Figure 5-8 shows examples of the following three items.



: joint two close intersect areas into one



: Shear a close intersect area contained in another



: pick up the intersect part of two close intersect areas

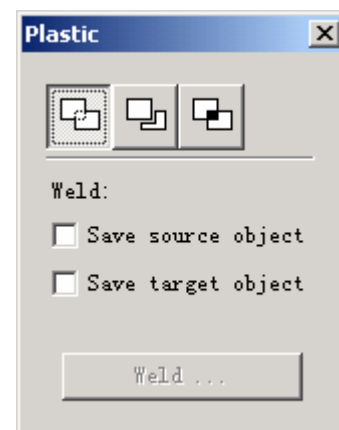


Figure 5-7 Plastic

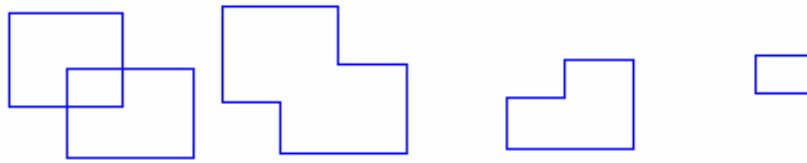


Figure 5-8 Plastic

1. Original 2. Joint 3. Shear 4. Intersect

5.3 Curve Editing

Auto- Connect:

When selected, a dialog box will appear as Figure 5-9 shows.

Auto-Connect Error:

If the distance between two curves' starting and ending points is less than the parameter set, the two curves will be jointed into one.

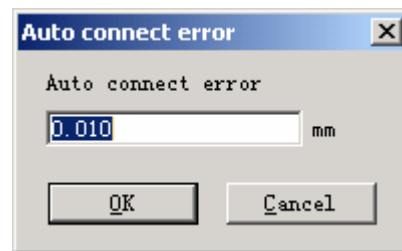


Figure 5-9 Auto-Connect

5.4 Align

Command "Align" will be available only when more than one objects are selected in the workspace. "Align" is used to align the objects users select on the two-dimensional plane. There are several ways to align:

- **Left:** All objects align left.
- **Right:** All objects align right.
- **Vertical:** All objects align vertical.

These three ways above only support to move objects on horizontal direction.

- **Top:** All objects align top.
- **Bottom:** All objects align bottom.
- **Horizontal:** All objects align horizontal.

These three ways above only support to move objects on vertical direction.

- **Center:** All objects align center. This way may cause moves on both horizontal and vertical directions.

Note: The benchmark to align is according to the last object users select, and other

objects align behind it. If you select several objects by “Frame Select”, then the system will hardly identify which is the last one, and this may cause unexpected alignment. It is strongly recommended that you select the object which is to be the benchmark at the end when you want to align several objects.

Chapter 6 View Menu

The View Menu is used to set every option for view in the YmMarker2.0 window, as Figure 6-1 shows.

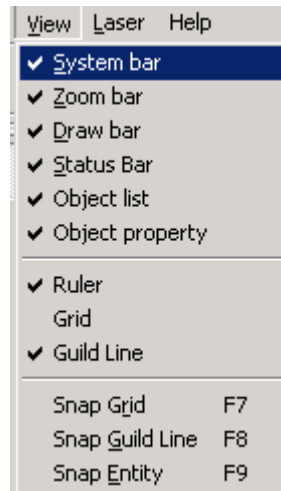
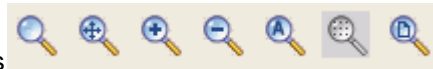


Figure 6-1 View Menu

6.1 Zoom



The Toolbar of the zoom Menu is , and there are seven types for different requirements.



: This item is used to fill the whole view area with the appointed area. Users may use mouse to select rectangle area to zoom in. If pressing the right button of the mouse, the current view will zoom out for one time with the mouse pointer's position as the center; and if pressing the left button of the mouse, the current view will zoom in for one time with the mouse pointer's position as the center.



: To move the current view



: Zoom in



: Zoom out



: Fill the whole view area with all the objects



: Fill the whole view area with only the selected objects



: Fill the whole view area with the whole workspace

6.2 Ruler / Gridding / Guide Line

There are Horizontal Guage, Vertical Guage, Gridding and Guide Line for selection.

6.3 Snap Grid

This item is used to automatically put the dots you draw on the grid.

6.4 Snap Guide Line

This item is used to make objects approach to guide lines automatically when moving the object..

6.5 Snap Objects

This item is used to snap an object's top, center, nodes, circle center, intersect points, etc.

6.6 System Toolbar / View Toolbar / Draw Toolbar / Status Bar / Object List Toolbar / Object Properties Toolbar

YmMarker2.0 supports many toolbars to achieve different functions. Toolbars can be either displayed or hidden by selecting corresponding options in View Menu; and also the Status Bar can be displayed or hidden, either. When there is a "v" selected in front of the submenu, the corresponding toolbars or Status Bar is visible, and if not, they are hidden.

Chapter 7 Help

7.1 About YmMarker2.0

An “About YmMarker2.0” dialog box will appear if users select command “About” as Figure 7-1 shows. This box will display some information about the software, for example, the edition, the user authorized and the copyright. User’s name will also be included in the dialog box.

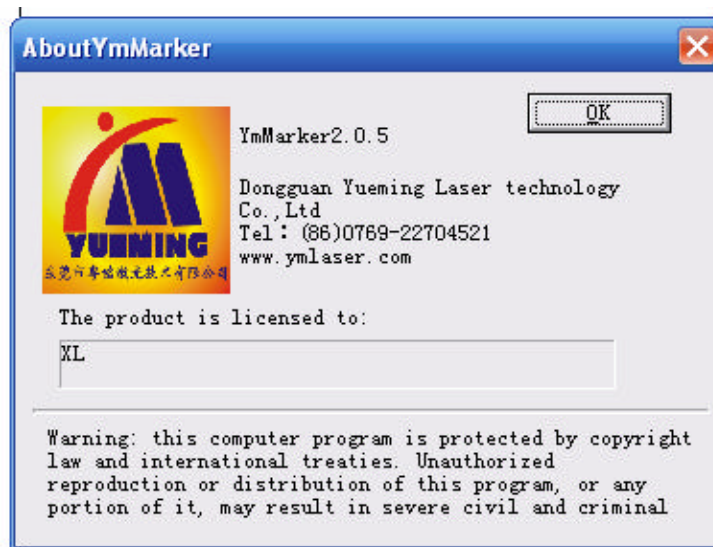



Figure 7-1 About YmMarker2.0


Chapter 8 Marking

Figure 8-1 is the Marking Properties Table.

8.1 Pen List

In YmMarker2.0, every document file has 256 pens, 0 to 255 numbered, and they are located in the top of the Marking Properties Table. Each pen is corresponding to a group of marking parameter and the parameter base's name is after the color.

: This item indicates that objects with selected pen's number will be marked. Users may customize the color by double-clicking the color sticker.

: This item indicates that the current object has not been marked with a pen's number, and it will not be marked.

Color: the current pen's color

Apply Parameter Button: The buttons show as Figure 8-2

When pressed the button, the pen number of the current object will be changed to the one that the color stands for.

When pressing the right button of the mouse, a shortcut menu will appear as Figure 8-3 shows.

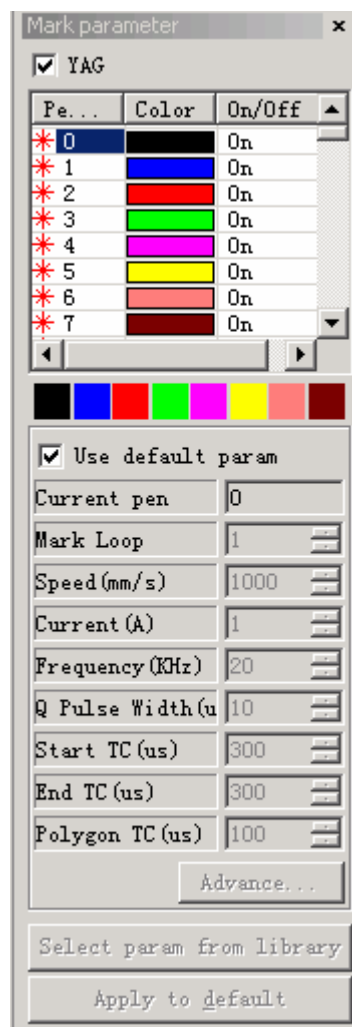


Figure 8-1 Marking Properties Table



Figure 8-2 Button to apply parameters

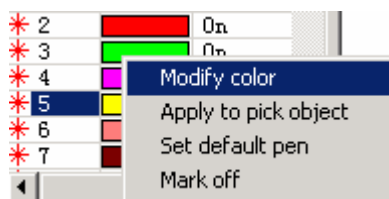


Figure 8-3 Shortcut Menu

8.2 Marking Parameter Base

Marking Parameter Base is a base filled with all marking parameters which have been set by users already. Figure 8-4 is a Marking Parameter List.

YAG: YAG indicates that the current Marking Parameter is for YAG laser machine, and if not, it is for CO2 laser machine.

Select param from library: When press this button, a dialog will pop up as figure 8-4 shows. We can save the parameters to disk files, or to delete parameters from files.

Curr param Save As: "Curr param Save As" is used to name the current marking parameter to disk as another parameter base's name.

Delete: to delete the current parameter base name.

Apply to Default: save all the current parameter to "default" parameter base name

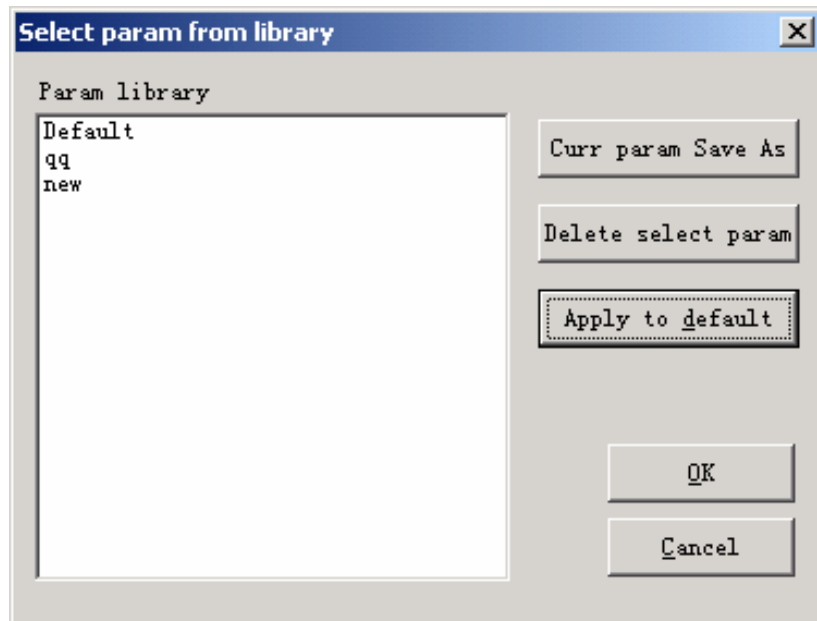


Figure 8-4 Marking Parameter Base List

Mark Loop: loop times to mark an object

Speed: the current marking speed

Power: This item indicates the power percentage of the current marking parameter, and 100% refers to the biggest power of the laser equipment.

Frequency: the laser machine's frequency in the marking parameter

Q pulse Width: the high-level's time of the Q pulse if the laser equipment is Qswitch YAG laser machine

Start TC: When the scanhead has to execute a mark command, the scanner mirrors first have to be accelerated up to the defined marking speed. In the beginning of the movement, the laser focus moves very slowly which may result to burn-in effect at the start point. To avoid this, We insert a delay (**Start TC**) at the beginning of each mark command. When the laser eventually turns on, the mirrors have already reached a certain velocity. However, if this value is too large, the first part of the vector will be cut off. Also negative value is supported.

End TC: The **End TC** parameter is used to control how long the software will wait at the end of a series of vectors. The wait is required because the software is always "ahead" of the

hardware and must wait for the hardware to catch up. This delay applies to the end of all vectors in which the laser is to be turned off after execution.

Polygon TC: The **Polygon TC** parameter is used to control how long the software will wait at vector connection points. The wait is required due to the lag time between the software/DAC position and the actual hardware/mirror position. This timer applies to all vectors whose endpoint is also the start point of the next vector (polygon connection points). In other words, this timer applies to end of all vectors in a series of connected vectors, except for the last one (the end of last one is controlled by the **End TC** parameter). The three connected points in a square or the intermediate connection points in a polyline circle are examples of points the **Polygon TC** parameter can effect. The starting point of the square is controlled by **Start TC** parameter. The last corner of the square is controlled with the **End TC** timer.

Clicking "Advanced" will prompt an advanced parameter dialog box as Figure 8-5 shows.

Jump Speed: set a jump speed of the scanner for the current parameter

Jump Position TC | Jump Dist TC:

The delays required for laser off position moves are calculated based on a formula that includes an offset and a distance proportional component.

Jump Position TC is the offset portion and is added to all position moves. The **Jump Dist TC** parameter is multiplied by the distance moved and normalized. These two components are added together to determine the total delay required.

$$\text{Total delay} = (\text{Jump Distance} \times \text{Jump Dist TC}) + \text{Jump Position TC}$$

Jump Position TC is set to eliminate tails on small moves and **Jump Dist TC** is used to eliminate the remaining long move tails. If these timers are set too high the marks will look good but the marking throughput will be adversely affected. It is very important to find the smallest values that eliminate the tails.

End point compensate: Only when in high-speed operation or this parameter need not to be set. This parameter is used to mark a little bit more as an ending increment at the end of an operation. Negative value is supported.

Acc Distance: In those applications that require laser marking without variation of intensity, we have to add an accelerated segment before the start point to reach the homogenous marking results.

Point Time: This parameter is used to set the marking time if there are dot objects.

Now let's take it into practice:

Mark a rectangle with size 40x20 and fill it with the following parameters: **Mark Contour/Edge offset=0 / Line Distance =1.0 /Hatch Angle= 0 / Unidirectional hatch**

Set the marking parameters like this:

Advanced mark param	
Jump Speed	4000 mm/s
Jump Position TC	500 us
Jump Dist TC	100 us
End compensate	0 mm
Acc. Distance	0 mm
Point time	0.100 ms
<input type="button" value="OK"/> <input type="button" value="Cancel"/>	

Figure 8-5 Advanced

Parameter Name: XX ---- the name users customize (easy to understand it's means.);
 Mark Loop: 1;
 Marking Speed: XX ---- the speed users need;
 Jump Speed: XXX ---- the jump speed users customize (It is suggested to use 1200
 –2500.);

Power Percentage: 50%;

Frequency: 5KHZ;

Start TC: 300;

End TC: 300;

Polygon TC: 100;

Jump PositionTC: 1000;

Jump DistanceTC: 1000;

End compensate: 0;

Acc. Distance: 0;

There may be several results to mark this hatched rectangle,.

Case #1: The hatch-lines and the border are separated. (Figure 8-6) This is because the **Start TC** Value is too big, and it needs to be smaller.

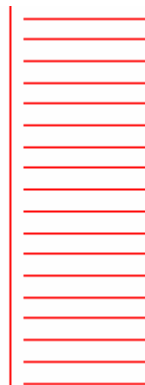


Figure 8-6 Case #1

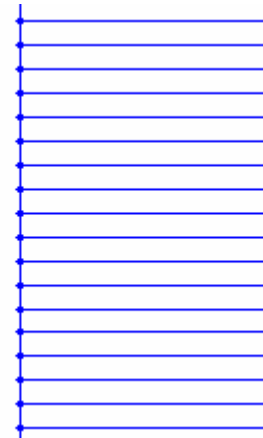


Figure 8-7 Case #2

Case #2: The hatch-lines and the border are intersected (burn-in effect). (Figure 8-7) This is because the **Start TC** Value is too small, and it needs to be higher.

Case #3: Uniform result.

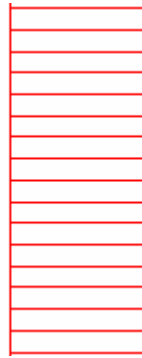


Figure 8-8 Case #3

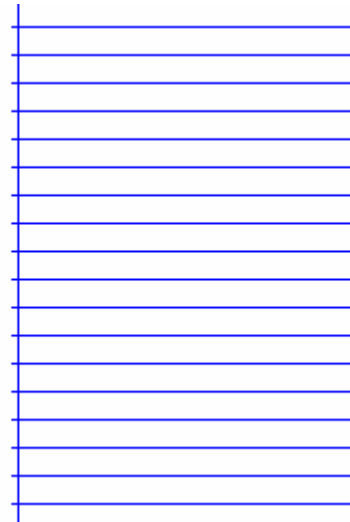


Figure 8-9 Case #4

Different manufacturers use different Laser sources and scanner(gavlo), so the performances are also different. Sometimes when however users modify the **Start TC**, the hatch-lines and the border can not be superposed. Here users need to set the **Acc Distance** Parameter (Values from 0.05 to 0.25). But this may cause the 4th case: the hatch-lines are beyond the border, as Figure 8-9 shows. Users may increase the **Start TC** Value or lower the **Acc Distance** Parameter, and if the two parameters are adjusted well, there will be a perfect result.

- Adjust **End TC**:

Still mark the hatched rectangle mentioned above

Here are three possible cases about the hatch-lines and the border's relative positions.

Case #1: The fill-lines and the border are separated, as Figure 810 shows. This is because the **End TC** is too short, and users need to raise it.

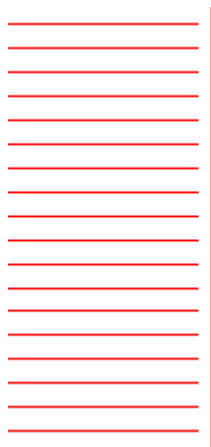


Figure 8-10 Case #1

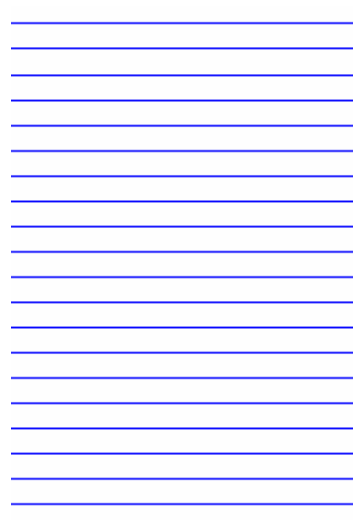


Figure 8-11 Case #2

Case #2: Burn-in effect as Figure 8-11 shows. This is because the **End TC** is too long, and users need to shorten it.

Case #3: Perfect result as Figure 8-12 shows.

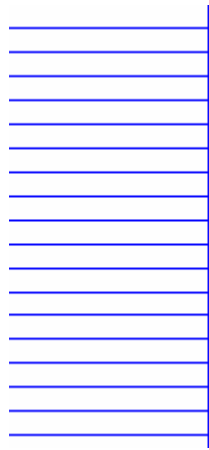


Figure 8-12 Case 3

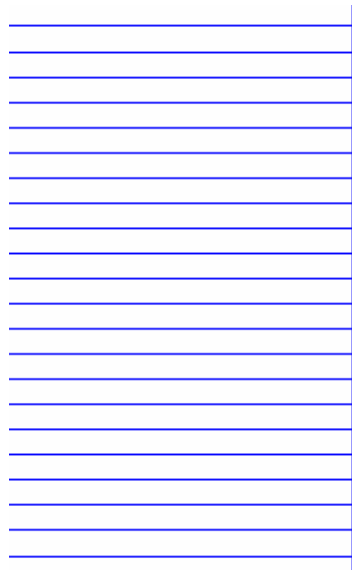


Figure 8-13 Case 4

Different manufacturers use different Laser sources and scanner(gavlo), so the performances are also different. Sometimes when however users modify the **End TC**, the hatch-lines and the border can not be superposed. Here users need to set the **End Compensate** (Values from 0.05 to 0.25). But this may cause the 4th case: the hatch-lines are beyond the border, as Figure 8-13 shows. Users should lower the **End Compensate** to reach the perfect result.

- Adjust **Jump Position TC** | **Jump Dist TC** :

Below is the adjust steps:

Set the two Jump TC items' values (Position TC value and Distance TC value) as 0 and then mark the rectangle.

If the start segment and ending segment of the hatch-line are bent, users need to increase the two Jump TC's values until there is no bend appearing.

Note: The Jump TC is too big may influence marking efficiency. The scanner (gavlo) have better performance, the lower the two Jump TC's value is.

- Adjust **Polygon TC**:

If mark a rectangle with size 40×20, you may find three possible results about the rectangle's corners:

Case #1: As Figure 8-14 shows, it is changed into arc angle which should be right angle, and this is because the **Polygon TC** is too short, here users need to raise the value.



Figure 8-14 Case #1

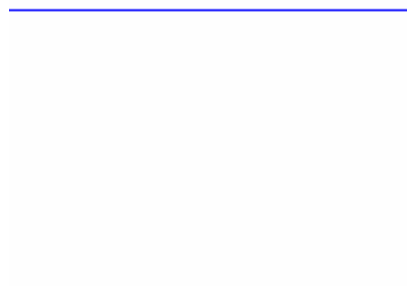


Figure 8-15 Case #2

Case #2: As Figure 8-15 shows, although the right angle is what it should be, the corner of the angle is heavy marked, and this is because the **Polygon TC** is too long, here users need to shorten the value.

Case #3: As Figure 8-16 shows, it is right angle and there is no heavy marking. This is the result we want.



Figure 8-16 Case #3

When finish setting these parameters already, you may start to mark. It is recommended that users had better not modify the parameters which have been adjusted well. If they were changed, the result would be changed too.

Users can use the same way to set other parameters and save them in the parameter list. By doing this users can reduce the repeated works and raise the work efficiency.

8.3 Mark-Control Bar

The Mark-Control Bar is located at the bottom of the main interface window, as Figure 8-17 shows.

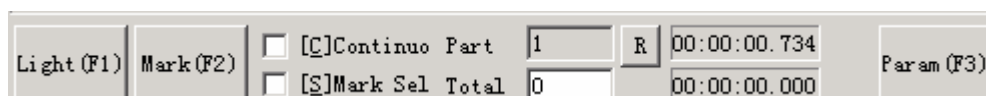


Figure 8-17 Mark-Control Bar

Light: This item is used to mark the frame of the object without laser output so that users are convenient to orient the workpiece. This function is available in those laser machines which have guide light.

Key "F1" is the shortcut key of this function for guide light show.

Mark: to execute marking

Key "F2" is the shortcut key of this function.

Continuous: mark the objects repeatedly until user stop the mark

Mark Selected: only those selected objects would be marked

Part: the total counts that the mark command has been executed

Total: The total counts that the mark command should be executed. The value would decrease 1 automatically after the mark command has been executed each time. It is unavailable under the mode of Continuous Marking. When in marking process, if the amount number is more than 1, the marking operation will not stop until the marking number is 0.

Parameter: machine parameter

Key "F3" is the shortcut key of this function.

8.4 Machine Parameters

8.4.1 Field Parameter

See Figure 8-18

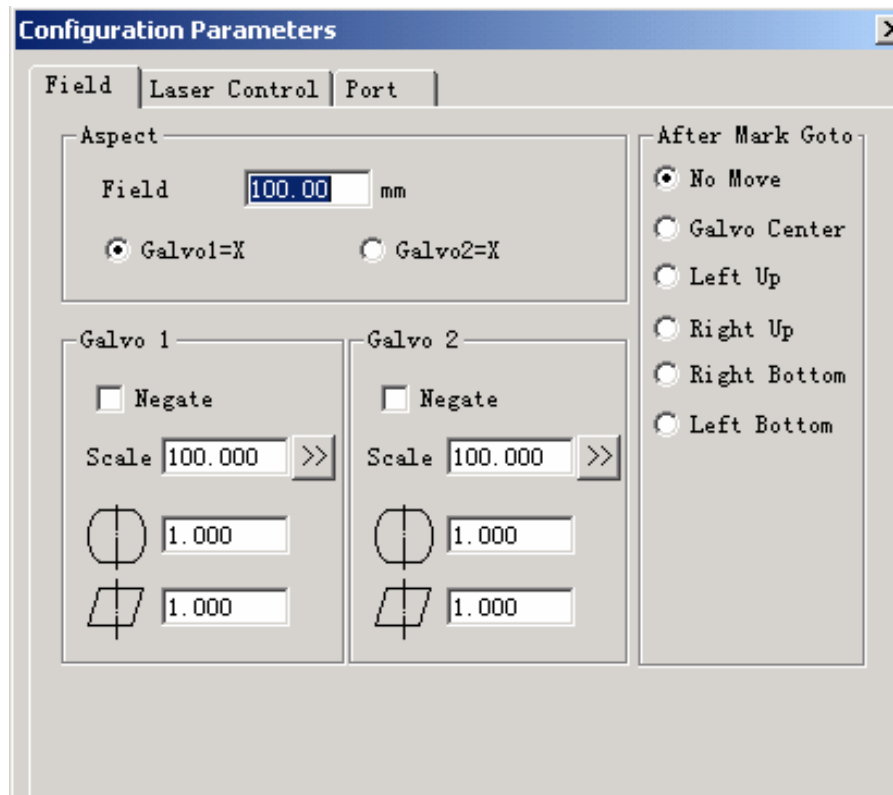


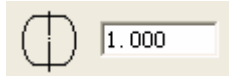
Figure 8-18 Area Parameter

Field: the widest range for marking

Gavlo 1=x: the track of gavlo 1 used as the X axis

Gavlo 2=x: the track of gavlo 2 used as the X axis

Negate: the opposite direction of the current gavlo



: This item refers to the distortion correction coefficient, and the default value is 1.0 (range from 0.875 – 1.125). If your design is as Figure 8-19 shows but the marked work is Figure 8-20 or Figure 8-21, you will have to increase the coefficient on the X axis direction for Figure 8-20 and lower the coefficient on the X axis direction for Figure 8-21.

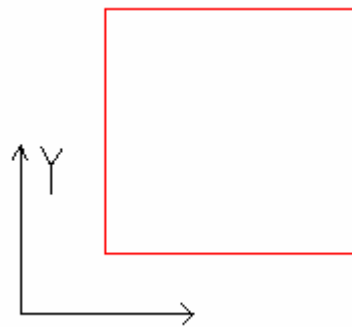


Figure 8-19 Your Design

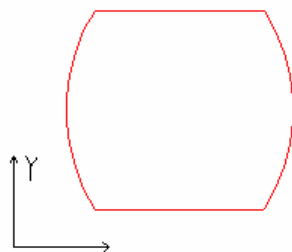


Figure 8-20 Marked Work

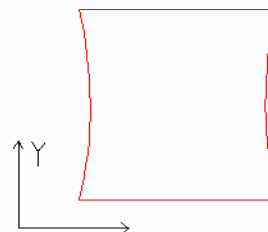


Figure 8-21 Marked Work



: This item indicates the parallelogram correction coefficient, and the default is 1.0 (range from 0.875 – 1.125). If your design is as Figure 8-19 shows but the marked work is Figure 8-22, you will have to adjust this parameter to correct it.

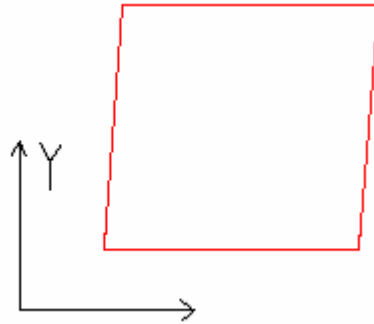



Figure 8-22 Marked Work

Scale: It refers to the flex percentage, and the default is 100%. This parameter will be adjusted when the trim size marked is different from the setting size. If the trim size is smaller than the designed one, users can raise this parameter; if the trim size is bigger than the designed one, users can lower this parameter.

Note: If there are some distortions with the Laser scanner (gavlo), users should firstly adjust the distortions and then the flex percentage.

When setting **scale**, we may press the button  and a dialog will pop up just like figure 8-23.

Goal mark size: the size set in the software.

Real mark size: the measured size of the object which have been marked on the workpiece.

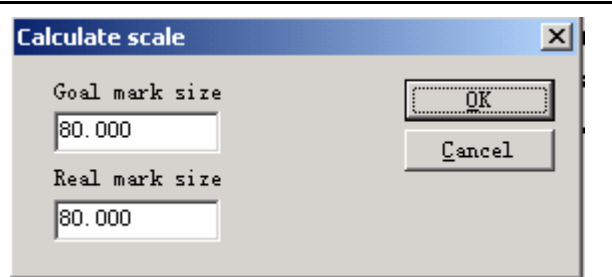


Figure 8-23 Set the scale

The software will calculate the **scale** automatically according to these two values.

After mark Go to: The gavlo jump to the appointed position when finishing marking

8.4.2 Laser Control Parameter

See Figure 8-24

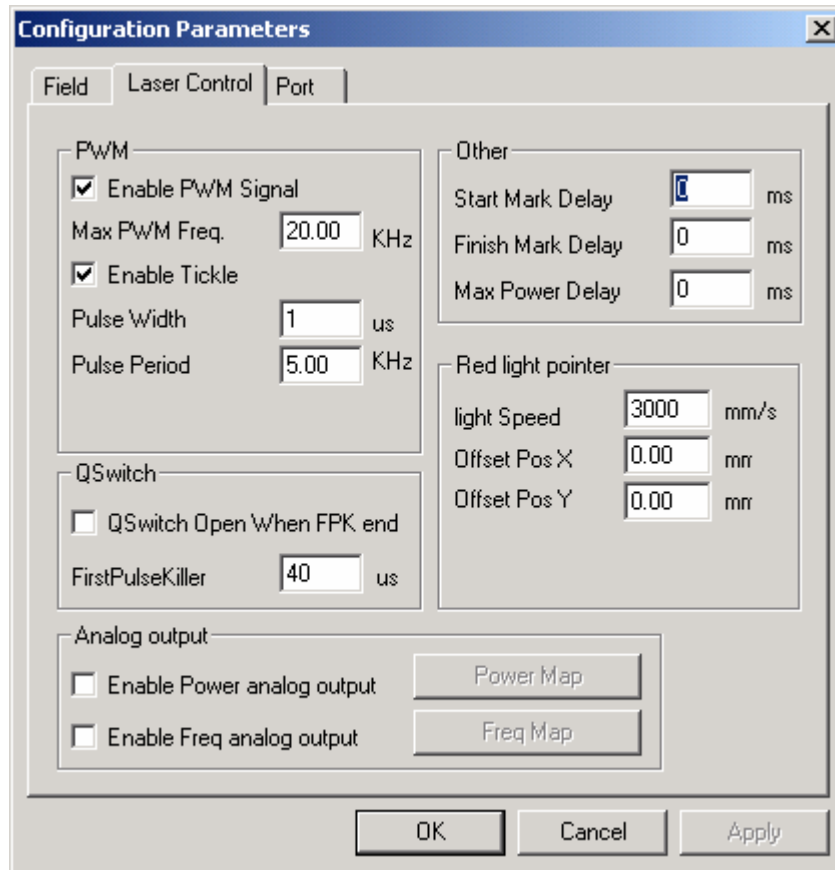


Figure 8-24 Laser Parameter

PWM:

Enable PWM signals: The PWM signal will be output from Control Card

Max. PWM freq: the max frequency of the PWM signals

Enable Tickle: Let the preionization signals active for some CO2 laser sources.

Pulse Width: the pulse width of the preionization signals

Pulse Period: the frequency of the preionization signals

Q-switch Open when F.P.K End: If Checked, the Q-switch modulation signal will begin pulsing after the FPS delay has expired. Otherwise Q-switch pulsing begins at the end of the **Start TC** delay and coincidentally with the beginning of the FPK signal.

First Pulse Killer (F.P.K): the lasting time for the first pulse suppression

Starting Mark Delay: The delay before marking.

Max. Power Delay: The Max delay when the laser power is changed from 0% to 100% during marking. When the power's range is changed less than 100% during marking, the time is less proportional to the Max value. This function is suit for the laser power supply with slow response speed. If the laser power supply's response speed is very quick, this value may be 0 ms.

Red Light Pointer: Refers to guide light

Light Speed: the speed of guide light

Offset Pos X and Y : it is used to compensate the position error between guide light and the laser beam.

Enable Power Analog Output: Enable the control card to output analog signal which

used to control laser power. .

Power Mapping: This is power emendation function, used to set the power percentages of the customized and the corresponding one, as Figure 8-25 shows. If the customized power percentage is not in the displays of the Power dialog box, the system will pick the linearity margin values.

Enable Frequency Analog Output: Enable the control card to output analog signal which used to control Q-Switch frequency

Frequency Mapping: This is frequency emendation function, used to set the frequency percentages of the customized and the corresponding one, as Figure 8-26 shows.

Power (%)	Real Ratio (%)
0	10
10	15
20	20
30	30
40	40
50	50
60	60
70	70
80	80
90	90
100	97

Figure 8-25 Power Map Dialog Box

Frequency (KHz)	Real Ratio (%)
0.00	10
2.00	15
4.00	20
6.00	30
8.00	40
10.00	50
12.00	60
14.00	70
16.00	80
18.00	90
20.00	97

Figure 8-26 Frequency Map Dialog Box

8.4.3 Port Parameter

See Figure 8-27

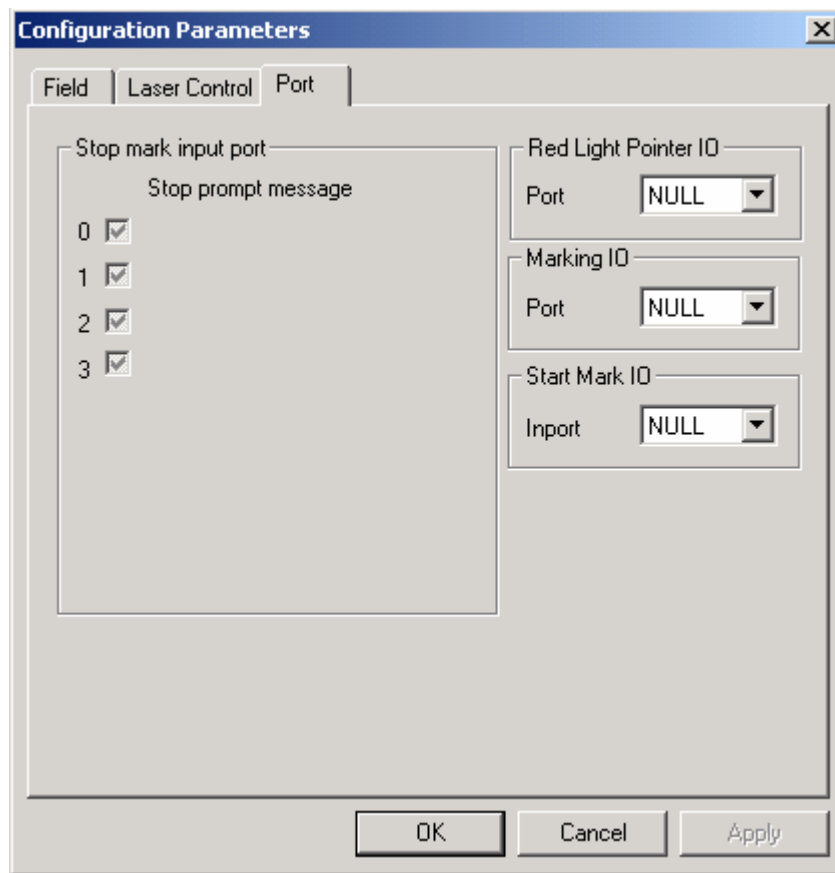


Figure 8-27 Port Parameter Dialog Box

Stop Marking Input Port: When in marking process, if the system detects there is a corresponding input signal, the current marking operation will be ended, and prompt the users with error information.

Red light pointer I/O: The system will output High-level to the appointed output port when guide light show.

Marking IO: The appointed port will output high level voltage (TTL Compatible) while in marking.

Start Mark IO: In idle state, the software will start mark if detect the high level voltage from the appointed port